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REPORT OF THE NATIONAL COMMISSION ON CATTLE

(RASHTRIYA GOVANSH AYOG)

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VOLUME II

DEPARTMENT OF ANIMAL HUSBANDRY & DAIRYING
MINISTRY OF AGRICULTURE
GOVERNMENT OF INDIA

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REPORT OF

COMMITTEE ON ADMINISTRATION OF CATTLE LAWS

Shri Kesari Chand Mehta	**Convener**
Smt. Gohar Aziz	**Member**
Shri Udailal Jaroli	**Consultant**

CHAPTER III

ADMINISTRATION OF CATTLE LAWS – REASONS FOR NON-IMPLEMENTATION – HOW TO COMBAT ILLEGAL SLAUGHTER SMUGGLING OF CATTLE AND EXPORT OF BEEF

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CHAPTER III

ADMINISTRATION OF CATTLE LAWS

REASONS FOR NON-IMPLEMENTATION – WAYS AND MEANS TO COMBAT THE PROBLEM OF ILLEGAL SLAUGHTER, SLAUGHTER HOUSES, BEEF EXPORTS, CATTLE SMUGGLING AND EXODUS OF CATTLE TO BANGLADESH AND KERALA

A Brief Introduction of present cattle laws

1. There is a complete absence of any specific Central laws, regarding the slaughter of cattle legislated by the Parliament of India, as the subject of Agriculture, including Animal Husbandry, is covered by the State List in the Constitution. Of course, the Constitutional provisions are there to provide Directive Principles and fundamental duties in the form of Article 48 and 51A respectively.

Constitutional Provisions

2. The Constitutional Provisions pertaining to the various aspects of the problem are briefly stated below.

Article 48 (Directive Principles)

2.1 This Article relates to the manner in which agriculture and animal husbandry should be organised, and has a special provision for taking steps for prohibiting the slaughter of cows, calves and other cattle. The Article, introduced as Article 38A after debate on an amendment motion presented in 1948 in the Constituent Assembly, reads as under:

> *"The State shall endeavour to organize agriculture and animal husbandry on modern and scientific lines and shall, in particular take steps for preserving and improving the breeds and prohibiting the slaughter of cows and calves and other milch and draught cattle.*

Article 51A (Fundamental duties):

2.2 This Article in the Fundamental Duties Chapter of the Constitution, enjoins upon the citizens of this country to cherish the ideals, which inspired our freedom struggle (ban on cow slaughter being one, the first War of Independence having been triggered off by the Sepoy Mutiny, in which soldiers, led by Mangal Pandey, refused to open beef-coated cartridges with their mouth) and to have compassion for all living creatures. The Article reads as follows:

> *" It shall be the duty of every citizen of India*
>
> *(a)* …………
> *(b) To cherish and follow the noble ideals which inspired our national struggle for freedom"*
> …………

(g) "*To protect and improve the natural environment including forests and to have compassion for living creatures*".

Article 246 (Jurisdiction of Parliament and States)

2.3 Article 246 defines the jurisdiction of Parliament and State Legislatures in the matter of making laws and three Lists have been drawn up, the first relating to the powers of the Union Government, the second pertaining to the legislative powers of the State Governments and the third being the Concurrent List, where both Parliament and the States have powers to legislate. The Article 246 reads as under:

> *(1) Notwithstanding anything in clauses (2) and (3), Parliament has exclusive power to make laws with respect to any of the matters enumerated in List I in the Seventh Scedule (referred to as the "Union List").*
> *(2) Notwithstanding anything in clause (3), Parliament, and subject to Clause (I) the Legislature of any State also, have powers to make laws with respect to any of the matters enumerated in List III in the Seventh Schedule (referred to as the "Concurrent List").*
> *(3) Subject to Clause (1) and (2) the Legislature of any State has exclusive power to make laws for such State or any part thereof with respect to any of the matters enumerated in List II in the Seventh Schedule (referred to as the "State List").*

Schedule VII, List II – State List

> *14. Agriculture, including agricultural education and research, protection against pest and prevention of plant diseases.*
> *15. Preservation, protection and improvement of stock and prevention of animal diseases; veterinary training and practice.*

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Scedule VII List III – Concurrent List

> *17. Prevention of cruelty to animals.*
>
> *28. Prevention of the extension from one State to another of infectious or contagious diseases or pests affecting men, animals or plants.*

Article 249 (Power of Parliament to legislate with respect to a matter in the State List in the National interest.)

> *(1) Notwithstanding anything in the foregoing provisions of this chapter, if the Council of States has declared by resolution supported by not less than two-thirds of the members present and voting that it is necessary or expedient in the national interest that Parliament should make laws with respect to any matter enumerated in the State List specified in the resolution, it shall be lawful for Parliament to make laws for the whole or any part of the territory of India with respect to that matter while the resolution remains in force.*

(2) *A resolution passed under Clause (1) shall remain in force for such period not exceeding one year as may be specified therein:*
Provided that, if and so often as resolution approving the continuance in force of any such resolution is passed in the manner provided in clause (1), such resolution shall continue in force for a further period of one year from the date on which under this clause it would otherwise have ceased to be in force.

(3) *A law made by Parliament which Parliament would not but for the passing of a resolution under Clause (1) have been competent to make shall, to the extent of the incompetency, cease to have effect on the expiration of a period of six months after the resolution has ceased to be in force, except as respects things done or omitted to be done before the expiration of the said period.*

State Laws

3. In pursuance of the directive principle of state policy, as contained in Articl 48 of the Constitution of India, most States have enacted laws in one form or the other, relating to the prohibition on slaughter of the cow and its progeny.

4. The list of laws enacted by the States and Union Territories is given at **Annex III (1)**. It will be seen that, in some States there are exclusive cattle preservation laws, whereas in other States, Animal preservation laws have been enacted, extending protection to other animals also, including those belonging to the bovine species. Also, some States have specific Acts for prohibition of slaughter of cows, whereas others relate to preservation of agricultural cattle. In respect of the newly-created States of Jharkhand, Uttaranchal and Chattisgarh, the laws of undivided Bihar, Uttar Pradesh and Madhya Pradesh prevail, as the new States are yet to formulate their own laws. Kerala is the only major State, apart from some of the North Eastern States, which does not have an Act with regard to slaughter of cattle.

Central Laws relating to prevention of cruelty to animals

5. There are certain provisions in the Central Laws in the matter of cruelty to animals, including cattle, such as Section 429 of the Indian Penal Code; The Prevention of Cruelty to Animals Act, 1960; Transport of Animals Rules 1978 and so on. The relevant provisions of these Acts and Rules are given in **Annex III (2)**.

Committee on administration of cattle laws

6. At its first meeting, held on 13.8.2001 in New Delhi, the National Commission on Cattle constituted five Committees, indluding one which was required to go into the issues relating to implementation of the existing cattle laws and other related aspects, including illegal slaughter of cattle at licensed as well as unlicensed slaughter houses, the problem of meat exports, movement of cattle from one State to another for slaughter and so on.

7. The Members of the Committee, along with the other Members of the Commission, toured almost the entire country, covering all the State capitals as well as a few other major centres to hold public hearings and discussions with the Government officials of the States. On the basis of feed back received in such public hearings, as well as an in-depth study of the issues involved, the Animal Preservation Acts of the States and the material published elsewhere, the Committee has various observations to make and suggestions to offer. The status of present Cattle Preservation Laws, the reasons for their non-implementation and the problems that are faced in effective administration of the laws, with suggestions to plug the loopholes in the legislative and administrative provisions and procedures, are dealt with in this Chapter.

Position regarding implementation of existing Laws

8. The fountain-head of animal welfare in the country is Article 48 of the Constitution. Unfortuntely, this Article forms part of the Directive Principles of State Poplicy in Part IV of the Constitution and, as such, is not enforceable. Though it gives explicit directions to the Staes to prevent slaughter, in almost all the animal preservation laws of the country there are hardly ay positive directions about preservation and protection of the cattle. On the contrary, the Animal Preservation Laws sound more like slaughter manuals.

9. In the States where the cattle preservation laws have been enacted, the position regarding implementation of these laws is pathetic, as reported by various animal welfare organisations during the public hearings of the Commission. Most of the organisations reported that the laws exist only in statue books and they are observed more in breach. In almost all the States the meat trade has become a very strong lobby and has spread its tentacles over the administration as well as the law enforcing agencies. There is almost unchecked transportation of cattle for slaughter between neighbouring States and in some cases from one corner of the country to the other, especially to Bengal and Bihar for onwards smuggling of the cattle for slaughter into Bangladesh.

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10. The Animal Welfare Board of India had commissioned a study about transportation of cattle through Bihar and Bengal into Bangladesh. The Study revealed that untold numbers of cattle are being transported in miserable conditions and exported to Bangladesh for slaughter, some remaining in West Bengal itself, where beef-eating and illegal slaughter of cattle is rampant.

11. In most of the States, during the public hearings held by the Commission, the animal welfare organisations reported that the law-enforcing agencies did not cooperate with them whenever they drew the attention of these agencies to the blatant violation of the State laws and illegal transportation and slaughter of cattle. On the contrary, whenever any animal welfare organisation takes some steps to apprehend the culprits, the State Administration, particularly the Police Department, sides with the violators of the law and oppresses the NGOS. There have been instances when animal welfare activists have been beaten up and put behind bars, though they have been trying to assist the State administration in proper implementation of the law.

12. Though illegal transportation and slaughter is the routine thing, the level of such activity rises substantially on the occasion of Bakri-Id every year. Though the authorities are aware that large scale slaughter of young and healthy animals in violation of the local laws takes place on the occasion of Bakri-Id, they turn a Nelson's eye to such activities. They not only ignore the protestations of the NGOs, they threaten them with dire consequences on the pretext of not permitting the law to be taken in their hands. The request of the NGOs to set up or constitute Special Task Forces in the Police Department to check illegal transportation and slaughter is also not conceded by the State Administrations. Though no concrete proof could be furnished for obvious reasons, it was widely reported by the local NGOs that the local politicians have financial stake in the meat trade and as a result full protection is given to this activity.

Approach of political parties

13. Ignoring the strong economic reasons that should dictate preservation and protection of the nation's cattle wealth, the protection of cattle has been given the colour of a religious issue, and the so-called 'secular' political parties, in order to exhibit their secular credentials, have gone out of their way to show total indifference to this issue and have not done anything to strengthen the legal situation or the implementation of the existing laws.

14. The Congress Party has been ruling the Nation during the better part of the last 50 years and, despite a nation-wide aspiration to have better animal preservation laws and their strict implementation, it has not accorded any seriousness to the issue. Two earlier Commissions appointed on this subject have submitted detailed reports making very sound recommendations. However, these reports are gathering dust in the Government archives. On the other hand, the report of the National Commission on Agriculture, which recommends higher and higher rates of slaughter, is being followed very religiously.

15. Similar is the case with the Communist-ruled States i.e. West Bengal and Kerala. The Communist governments are not at all sensitive to this issue and while Kerala has become a major centre of cattle slaughter in the South, West Bengal holds that position in North India and is also a very convenient gateway for smuggling of cattle into neighbouring Bangladesh.

Apathy of the bureaucracy

16. The bureaucracy negates all the efforts of animal welfare organisations to seek amendments in the State Laws to make them more effective and stringent. Defying, at times, even the political leadership and will, the bureaucracy stone-walls all such efforts.

17. A glaring example of this apathy is the total disregard of a Supreme Court order by the Government and administration of West Bengal. The West Bengal Animal Slaughter Control Act, 1950, vide Section 12, granted the State Government the powers to exempt from the operation of the Act, the slaughter of any animal for any religious, medicinal or research purposes. Under the shelter of this provision

permits were being issued by the authorities for slaughter of even cows on the occasion of Bakri-Id every year. The authority to issue such permits was given to the Municipal Authorities and more than one lakh young and healthy cows were being slaughtered in the city of Calcutta alone on the occasion of Bakri-Id. The number of cows slaughtered all over the State was much larger.

18. In a case filed before it in the year 1972, the Calcutta High Court, in a judgement delivered by it in 1982, held that the exemption was outside the scope of Sec.12 of the Act and was, therefor, dehors the statute and therefore the exemption order was struck down. The State Government and the other affected parties, all butchers, preferred an appeal before the Supreme Court, which granted a stay at the admission stage. The case was finally disposed of in 1994 (State of West Bengal & others versus Ashutosh Lahiri & others – AIR 1995 Supreme Court 464), with the apex court upholding the High Court's judgement. It is unfortunate that it took 22 long years for this issue to be settled and, in the meantime, lakhs of young and healthy cows were slaughtered.

19. However, this was not the end of the matter. Despite the Supreme Court order, the West Bengal Government and administration did not take any effective steps for abiding by the Supreme Court order, except some cosmetic steps like advertisement in the local newspapers, appealing to the people to abide by the Supreme Court order. The blatant violation of the law, in contempt of Supreme Court judgement has continued since 1994 and any amount of follow-up action by the animal welfare organisations to persuade the State Administration have not achieved the desired results. On the contrary, the few peaceful agitators pleading with the administration for compliance with the Supreme Court order were rounded up and put behind bars on the occasion of Bakri-Id in the year 2002. An animal welfare organisation, viz. Akhil Bharat Krishi Goseva Sangh, founded by Mahatma Gandhi and nurtured by Acharya Vinoba Bhave, has been active in this field throughout the country and had to file a contempt petition in the Calcutta High Court against the West Bengal Government to obtain directions that the Supreme Court judgement be complied with in both letter and spirit.

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20. Thousands of instances of government apathy were brought to the notice of the Commission, based on which it may be safely concluded that there is utter lack of political and bureaucratic will towards protection of cattle.

Unholy nexus between meat lobby, politicians and bureaucracy

21. Meat trade by itself is a very lucrative activity. Indian meat is considered to be of very high quality as it lacks fat content and if free from harmful substances, which travel to the animal body through the food chain. Not only the Indian meat but the leather of Indian cattle and particularly calf leather is in great demand in international markets.

22. A cattle purchased for slaughter at a price ranging between Rs. 500/- to Rs.3000/- can fetch as much as Rs.20,000/- after it is slaughtered and its meat, leather and other parts are sold. This high profitability has created very high stakes in the meat trade. It has increased the capacity of the meat lobby to spend lavishly

in buying the co-operation of the Authorities. Though beef is not permitted to be exported, it is clandestinely exported, stamped as buffalo meat, and thus a very strong nexus between meat lobby, politicians and bureaucracy has come into existence. Policies are framed to promote meat trade, all sorts of encouragement, protection and a host of subsidies are provided to this sector and the booty is shared by all the three sectors of this nexus.

23. There has been no study of the economic benefits flowing from the cattle wealth of the nation. On the other hand the earning of the meat sector are touted in the media to promote and justify meat trade. The agricultural sector is the worst sufferer as a result of indiscriminate cattle slaughter. The cattle-based and organic manure-based agriculture has given way to mechanised and chemical fertiliser-pesticide-based agriculture, pushing the costs in the agricultural sector to unviable levels. The contribution of cattle in sustaining our agricultural operations needs to be appreciated and for that reason our cattle wealth need to be protected.

Lack of uniformity in State Laws

24. Various States have enacted their own cattle preservation laws. However, there is no consitency in these laws even on fundamental issues. Article 48 explicitly prohibits slaughter of 'cows' and hence most of these Acts have imposed a ban on slaughter of cow. However, despite the word 'cows' being used in plural in the Constitution, which ought to include the entire cow family, the State laws have separated the cow family into the female of the cow, a bull or bullock and the calf, according protection only to the female of cow (that too not in the State of West Bengal and Kerala) and other progenies of the cow family are made slaughterable.

25. Some of the Acts have defined calves, bulls and bullocks, whereas many of the Acts have not defined them. Even where definitions are there, there is no uniformity. As a result of the above ambiguous and different legal position in different States, the cattle get transported to neighboring and are slaughtered there.

26. A glaring example of the lacuna in the definitions adopted by different States in their respective legislation can be found in the Maharashtra Animal Preservation Act, 1976. This Act does not define a calf. Normally the young one of the cow is a calf until it grows into an adult, acquiring the capacity for procreation, which is around the age of 3 Years. Thus, a young one till the age of 3 years should be considered as a calf and it is likewise defined in some of the State Laws also. However, in Maharashtra, in the absence of a clear-cut definition of a calf in the Statute, a calf is administratively (not legally) defined as a young one up to the age of one year. A bull or bullock is defined as the male progeny above three years of age. Thus, a calf between the age of one year and up to 3 years is neither considered a calf or as a bull / bullock and thus does not fall within any of the categories specified in the schedule of animals to which the Act applies. It thus remains out of the protective umbrella and is liable to be slaughtered. Thus lakhs of calves are slaughtered in Maharashtra mainly for their hides and skins, as calf-leather commands a premium price in international markets.

27. Hence, all the State laws need to be reviewed by a single agency to bring about uniformity in definitions and other provisions, so as to prevent illegal slaughter.

28. In addition, many of the State laws are silent as far as the provisions regarding burden of proof to be cast on the person from whom the cattle is seized. There are also no provisions regarding who should be the custodian of the cattle, when they are seized in a crime involving transportation for illegal slaughter, and who should bear the cost of maintenance when the seized cattle are given to animal welfare organisations. In some of the Laws, the penal provisions are decades old and are not deterrent enough to force strict compliance. This also needs to be strengthened.

29. In the absence of provisions regarding interim custody of cattle seized during pendency of trial for illegal transportation / slaughter, the animal welfare organisations have to always make an application to the Trial Court. In some cases, the custody is granted and in some others, it is not granted. In such cases, the organisations have to move the Higher Courts and some of the cases have gone even to the Supreme Court, where ultimately the Supreme Court granted custody. Akhil Bharat Krishi Goseva Sangh had published a compilation of such cases where custody had been granted to the animal welfare organisations. This compilation, covering a selected 24 cases up to 1995, covers cases of various States of which 16 cases reached High Court and 4 cases reached the Supreme Court. The cases in the Supreme Court are as under:

i) Criminal Appeal No. 555 of 1989 – Go Bachav Samiti, Nalkheda v/s State of Madhya Pradesh & Another.

ii) Civil Appeal No. 2521 of 1992 – Gopal Goshala, Neemuch v/s Goriya K. Banjara & Ors.

iii) S.L.P. No. 1609 of 1989 wtih C.M.P. No. 3267 of 1989 Madanlal v/s State of Maharashtra (2 Judge Bench).

iv) S.L.P.No. 1609 of 1989 – Madanlal v/s State of Maharashtra, (3 Judge Bench).

Thereafter also many cases have gone to Supreme Court, the latest being the State of U.P. v/s Mustakeem & Others (Criminal Appeal Nos. 283-287 of 2002).

30. In the absence of clear-cut provisions about custody in the law itself, the NGOs have to spend heavily in fighting legal cases up to Supreme Court, which puts pressure on their meagre resources, which could otherwise be utilised on maintenance of cattle saved from slaughter.

31. As stated earlier, the State animal preservation laws read more like slaughter manuals rather than laws to protect cattle wealth. They prescribe the procedure to be followed if the animals are to be slaughtered. As the criteria for slaughterable animals, these Acts either speak of age-based restrictions (no foolproof machinery exists to ensure implementation of age-based restrictions) or they provide the economic viability criteria, which is subjective in nature and certification is left to the sole discretion of the veterinary officer. These criteria are about the existing or future economic utility of the cattle, which is to be decided by the veterinary officers, who arbitrarily exercise their powers, almost invariably in favour of permitting slaughter.

The stray decision to not certify an animal as fit for slaughter is subject to challenge by the meat trader, whereas the decision given in 99% of the cases to certify the animals to be fit for slaughter is not challenged by anyone. This is the height of arbitrariness.

Illegal Inter-State transportation

32. In view of the wide variation in legal provisions in various State laws, there is large-scale transportation of cattle from one State to another to take advantage of the legal provisions in the States where slaughter is permitted. For example, in Gujarat and M.P., which are neighboring States of Maharashtra, there are age restrictions on slaughter of bulls and bullocks (16 years in case of Gujarat and 15 years in case of M.P.). However, in Maharashtra, there are no age-based restrictions. Although in a legal case the State filed an affidavit in 1994 that it would prescribe age-based restrictions, this has not yet been done. The sole criterion, for deciding whether or not a cattle is fit for slaughter, is the prospects of economic viability of the animal, which is to be decided by a single individual, very subjectively and at his sole discretion. As a result, there is large-scale movement of animals from Gujarat and M.P. to Maharashtra for slaughter.

33. Similarly, there are restrictions in some of the State laws for transporting cattle out of the State for the purpose of slaughter. However, such transportation for agriculture or milching purposes is allowed. Taking advantage of these provisions, certificates are issued by the Competent Authorities (delegated to most incompetent persons in some cases), that the animals are being transported for agriculture. Such certificates are issued even for young calves, which are obviously not fit for agricultural operations or for milking. Thousands of animals from Rajasthan are transported with such certificates to Bihar and Bangladesh. The NGOs have been striving hard to check such illegal transportation and there are hundreds of cases instituted in local Courts, challenging such transportation. In a major case, three train-loads of young calves (aprrox. 5000 calves) were stopped from being transported by the butchers from Rajasthan to Bihar and U.P. and in a case instituted before the Rajasthan High Court (Writ Petition No. 6 of 2000), the Court quashed the permits granted for their transportation and passed severe strictures against the State Government machinery. Such cases are only the tip of the iceberg and there are unimaginable numbers of cases of transportation for illegal slaughter throughout the country.

34. During the public hearings in Rajasthan, the Commission was informed of large numbers of good breeds like Nagori bullocks being permitted to be taken to Bihar, ostensibly for agricultural purposes. However, when the Commission visited Bihar and Jharkhand, the Members were informed that the farmers in Bihar use only there local breed of Bachaur, which is a small animal for draught purposes. The members of the public stated that the farmers could not in any case afford to keep cattle of the superior breeds as they were poor. It is very obvious that the large numbers of cattle, sought to be transported to Bihar under false pretences, are actually taken to West Bengal and Bangladesh for slaughter. No checks are ever exercised by the authorities issuing the certificates and no verification is done to establish the bona fides of the persons actually buying the cattle. In one case, it was

found that one certificate was given to one person for transport of 300 cattle-heads from Rajasthan to Bihar.

35. It may be mentioned that the supply of bullocks to the Deonar abattoir in Mumbai is mainly from Gujarat, Rajasthan and Madhya Pradesh. All these States have imposed restrictions in their local laws on transportation of cattle for slaughter. However, bulls and bullocks are transported under certificates to the effect that they are being taken for agriculture. The authorities know fully well that no agricultural activity is carried out in Mumbai. Despite this, such certificates are issued and nobody in authority challenges them. Trainloads of bulls and bullocks were transported into Mumbai, until Akhil Bharat Krishi Goseva Sangh intercepted a full train carrying 600 bullocks at Vasai Road Railway Station on the suburban railway section of Mumbai, fought a legal case and obtained custody of these bullocks. Thereafter, transportation of bullocks by train to Mumbai has stopped. However, hundreds of trucks and tempos continue to bring bulls and bullocks for slaughter at Deonar abattoir in Mumbai from neighbouring States.

Growing violence against NGOs / Activists

36. The meat trade feels irked by the activities of animal welfare organisations / activists and not only have they become united in supporting the apprehended criminals, they have become increasingly violent to the extent of murdering the animal welfare activists. About 20 individuals have so far been killed in the last 5 years or so and hundreds have been assaulted and grievously injured. The glaring cases are those of Smt. Geetaben Rambhia murdered in broad-daylight in Ahmedabad; Advocate Lalit Jain of Bhiwandi in Maharastra shot dead at point blank range in the bustling market area at 11 a.m.; Prakashbhai of Deesa District in Banaskantha who was ruthlessly assaulted by a group of 4/5 butchers; one person, who was killed in Medta in Rajasthan; assault on the then General Secretary (now Working President) of Akhil Bharat Krishi Goseva Sangh, Shri Udaylal Jaroli of Neemuch; and, also, the assault on Shri Bharatbhai Kothari of Deesa, who fortunately survived after battling with a serious brain injury, sustained in the assault, for 4 months.

37. In one case in Azamgadh District in Uttar Pradesh, the Police party intercepted a gang of butchers, who were heavily armed and had a convoy of vehicles. When asked to stop, they defied the police order and tried to run away destroying barricades and firing on the police party. The police party had to alert the next police station to apprehend the offenders and, after crossing the area of jurisdiction of three police stations, the offenders were engaged in a gun battle with the police party on whom they fired sixty rounds. Seven bullocks in one of the trucks died of bullet injuries. This was one of the few cases in which the police authorities acted with commendable alacrity and determination. Detailed paper clippings of this incident are annexed as per Annexure-II collectively. There are hundreds of such cases of violence against animal welfare activists and the culprits are hardly apprehended or punished.

More for leather and less for meat

38. Killing of cattle nowadays is more for its leather rather than its meat. The annual leather exports from the country is valued at close to Rs.8,000 crores,

whereas the value of meat exports is between Rs.1200 and Rs.1500 crores (targeted to rise to Rs.2000 crores). Thus, the revenue from leather is much more and, even if local or export market for meat is curtailed, the killings are likely to continue for the sake of the leather.

39. It is worth mentioning that the campaign of People for Ethical Treatment of Animals (PETA), which highlighted the cruelty inflicted on cattle during transportation for slaughter and the gruesome manner of slaughter, evoked world-wide objection to Indian leather and many large importers of Indian leather stopped importing leather from India. This disturbed the applecart of the leather exporters, who put pressure on the Government to issue instructions that cruelties are not inflicted on cattle. However, this was just a cosmetic action to appease the world-wide uproar.

40. The entire slaughter activity at Bharatpur in Rajasthan, and its surrounding areas, is for leather and not for meat.

Rampant Illegal Transporation

41. As stated earlier there is interstate transportation of cattle for slaughter to take advantage of loopholes or slack implementation in neighbouring States. There are numerous cases, in which animal welfare organisations and activists have intercepted such illegal transportation at the border check-posts between States. Many cases have been filed at Malegaon in Maharashtra, Vapi in Gujarat, Neemuch in Madhya Pradesh, Bhiwandi on the border of Maharashtra and in Haryana. For one occasional vehicle intercepted, hundreds are allowed to pass without any hindrance. The animal welfare activists have to brave the risks involved and work almost without the support of police department.

42. It is not that the authorities are not aware of the large scale smuggling of Indian cattle to Bangladesh. A report in a weekly magazine "The Week", in its 15-6-1997 issue, described in vivid details the activities of smugglers of cattle. The report is reproduced hereunder:

DANGER DISTRICT

Smuggling is the main occupation in Murshidabad

Bangladesh earns substantial foreign exchange by selling to the Gulf countries. Its beef industry if largely dependent on smuggled cattle from India.

Idrish Aly has come a long, desperate way from egghead to a cowboy. After eight futile years of job hunting the bachelor of arts from West Bengal's border district of Murshidabad recently became a cattle smuggler.

So have thousnads of other yeoug men in the district, where the mail lifeline is smuggling of human beings, aniamls, gold and essential articles. "Every day a thousand head of cattle are being smuggled out to Bangladesh," said senior police officer of the district, which is infamous for sending children to beg in Mecca. :And there is no holiday in the smuggling business. The smugglers work all seven days a week." That means more than 3.5 lakh animals are spirited away to Bangladesh every year.

The Bangladesh government apparently is quite happy a bout it for the country earns substantial foreign exchange by selling beef to other Muslim countries, particularly those in the Gulf region. Its beef industry is largely dependent on smuggled cattle from India, and a large number of transit cattle camps have come up along the border. The government also gains from the thousand rupee tax on every animal smuggled into the country.

The smuggling business is lucrative despite the tax. A cow that costs Rs. 5,000 in Murshidabad fetches double the price in Bangladesh, and the payment is is gold ingots, which the smugglers sell in India at a profit. There is very little risk involved: the Indian law enforcers, who generally turn a blind eye, become alert only when they count the bribes.

It is a smooth operation in which there is no haggling over the bribes. The rate isfixed – Rs. 1,000 per cow, bullock or buffalo – and the money is shared among the local police, men of the Border Security Force, and village politicians. All of them obviously consider human beings less valuable; those who smuggle in people from Bangladesh have to pay only Rs. 500 as a bribe.

The demand for Indian cattle is so great in Bangladesh that a large number of gohats (cattle markets) have come up all over Murshidabad, especially in villages near the international border. The Baharampur subdivision alone has 17 gohats, and the government has no control over the transactions except in three gohats where a permit is required to take the cattle within eight kilometres of the border.

One of the authorised gohats is in Beldanga, 20 km from Baharampur town, where nearly 3,000 head of cattle are sold every Tuesday. " The business is worth Rs. 1.2 crore," said Abhijit Mazumdar, licensing inspector of Beldanga's regulated market committee, which issues the permit.

The permit costs just Rs. 4 per animal and helps the conniving BSF personnel get off the hook. "The permit business has become a recket," said a district administrator. "People are being allowed to smuggle out hundreds of animals on the strength of one permit. Who can distinguish between two cows of the same colour?

The law enforcers extract their pound of flesh whether the cattle seller has a permit or not. "we have to pay the local price of Rs. 50 per cow and the BSF people Rs. 500, " said Inrish, the graduate cattle smuggler. "And then *at the last stage, the customs officials have to be bribed." Yet it is good business: cattle account for Rs. 200 crore of the total smuggled wealth worth Rs. 1,000 crore.*

In a 'top secret' note, the government recently admitted that the rampant smuggling of cattle was clearly on the increase. So is the smuggling of Bangladeshis into Murshidabad. "At least six lakh illegal immigrants from Bangladesh have taken shelter in the district in the last 16 years," said a police officer. "It is very easy to smuggle in any number of people and the smugglers only have to pay half the bribe that cattle runners pay."

Murshidabad, which has become a smugglers' mecca, had 29.54 lakh people in 1981. By the next census six years ago the figure had risen to 47.40 and according to present estimates the population is around 52 lakh.

If the population has risen alarmingly so has the crime graph. The district registered as many as 147 murders in 1994, three dozen more the next year and 187 lat year. There has been no let-up; the first four months of the current year saw 55 murders. The number of dacoties, robberies and thefts has also increased manifold in the last two decades.

The rise in crime, particularly murder, is believed to be due to the population explosion in a small district; Murshidabad is just 5,324 square kilometers. "It you study the case reports of all these murders," said a police officer, "You will find that a dispute over land or dowry was at the root of the problem. And in this district dowry is often a plot of land."

The Beef Route: Cows from Beldanga may end up on an Arab plate

The massive influx from Bangladesh has inevitably altered the demographic profile of the district, where the Muslims now constitute nearly 70% of the population.
Perhaps Murshidabad is the only district in the country, besides those in Kashmir, where the Muslims have so overwhelming a presence.
The international border exists only on paper on most stretches and almost every family in the border villages has relatives on the Bangladesh side. Naturally it is quite easy for an illegal immigrant to find shelter on Indian soil. The host soon introduces him to the panchayat officials, who readily recommend a ration card for him, thus helping him pass off as an Indian.
It is because of the tremendous increase in population that smuggling has become the principal vocation of the jobless young men in Murshidabad. The district has no industry worth mentioning and the sudden scarcity of land has shattered its agrarian economy. "The smugglers are now controlling the economy of the districts," said a politician. Almost everything is smuggled out of the district – rice, pulses, sugar, edible oil, kerosene, diesel.
As the government admitted in its "top secret" note, " A large number of people in the border areas are directly or indirectly associated with smuggling." The most porous part of the border falls in seven villages –

Samsergunj, Suti, Raghunathgunj, Lalgola, Bhagawangola, Raninagar and Jalangi. Besides, there are 31 illegal ghats on the riverine border from where the goods are ferried to Bangladesh. Local politicians, police and BSF personnel get a cut of the profits.

The politicians have another reason for helping the smugglers of illegal immigrants: they can use the immigrants to strengthen their power base after getting them into the voters' list. An the police and the BSF personnel abet the smugglers and thrive on bribes in the knowledge that the politicians will never turn against their vote-banks.

"Every second house in our villages is a smugglers' den," said a school teacher of Baharampur town. "It appears that no one has any authority, moral or legal, to come out against smuggling. Some of the smugglers are members of panchayats and one smuggler was recently elected to the legislative assembly." He has no doubt that politicians who are not smugglers are indirect beneficiaries of the most lucrative business in Murshidabad.

The change in the demographic profile, couple with the rising crime rate, in the border district may be fraught with grave danger. " I have a feeling,: said a judicial officer, "that we are sitting on a powder keg."

-TAPASH GANGULY in Beharampur

The perilous policy of Meat Export

43. India has been exporting meat and other livestock products since 1973-74. The annual exports were around 2000 tonnes in the year 1973-73, which increased to 60,000 tonnes by the year 1987-88 and now they are close to 3,00,00 metric tonnes. The Government patronage to this sector started in the year 1992-93, when the Congress Government under Shri P. V. Narasimha Rao declared meat exports a 'thrust area' for earning foreign exchange. Ever since 1992-93, the Government is aggressively pushing up meat exports, providing financial assistance, a number of subsidies and incentives, besides various administrative reliefs. The Government also set up an autonomous authority by an Act of Parliament in the year 1986, named the Agriculture and Processed Food Products Export Development Authority (APEDA), which gives capital assistance and also helps Indian meat exporters in marketing their products abroad. Even when other industries were in the shackles of bureaucratic controls, meat exports were freed from licensing controls. A new Ministry called Ministry of Food Processing Industry was created by the Central Government to look after the needs of the processed foods industry, including meat processing.

44. Meat export has taken a heavy toll on the precious cattle wealth of the nation and has adversely affected cattle based agro economy of the country. For the record, it may be noted that 'beef' i.e. flesh of the cow family animals is so far on the negative list of exports under the Export Import Policy of the Government. (There was a suggestion at one of the meetings of the Working Group on Animal Husbandry, set up by the Planning Commission's for the 10th Five Year Plan, to remove this restriction! Fortunately, this has not been actually recommended by the Working Group).

45. Though the Western countries rear animals specifically for the purpose of slaughter, Indian beef and meat is preferred abroad as it is low in fat and relatively free from poisonous chemicals. In Western countries animals are given growth hormone injections to increase their body weight for larger meat yield. They are also fed on non-vegetarian cattle feed made of abattoir waste. This has led to the occurrence of BSE or mad-cow disease, which can be transmitted to human beings through the beef they consume. This fatal disease has occurred in United Kingdom and other European countries, while India is free from this disease, as our cattle are not fed on the meat and bones of other animals. In developed countries, the cattle are also given heavy doses of anti-biotic injections to keep them disease free. Human beings who eat the beef become immune to the effects of the antibiotics and thus become prone to the infections, which these anti-biotics are meant to control. The feed and fodder given to the slaughter animals in these countries is grown with the help of chemical fertilisers and pesticides, the residues of which enter the bodies of the animals and form part of the meat. In addition, there is large expatriate population of Indians in Gulf countries who prefer Indian meat.

46. Once having declared meat export as a thrust area, the Government of India has not thereafter reviewed this policy in the past almost one decade, nor has it studied the adverse effects of this policy on the livestock population, availability and price of milk and the effect on agriculture and allied activities. The present Bharatiya Janata Party Government at the Centre, which was in opposition when the Congress Government declared the meat export policy had vehemently opposed it in the Parliament, as well as in public. It had given indications that, on coming to power, it will ban meat export from the country. In fact, in their National Executive meeting, in the year 2000, the Bharatiya Janata Party had given directions to the Government of its own Party to ban meat export from the country. Similarly, the Animal Welfare Board of India, an autonomous Body under the Government of India, had also recommended banning of meat export in its 67th Executive Committee meeting. In addition, the Law Commission of India in its 157th Report had also recommended banning of meat export from the country. Overlooking all these recommendations and suggestions, the Government has not yet taken any step in this direction, despite numerous representations, delegations etc. both from members of Public/NGOs/ Animal Welfare Activists, as well as from some of its own Ministers and Party functionaries. Defying the wish of the entire nation, despite functioning as a democracy, the Government has been singularly immune to the demand for banning meat exports.

47. Under the Indian Constitution, Animal Husbandry is a State subject and the Centre has not enacted any law for preservation, protection or welfare of animals except that antiquated piece of toothless legislation called 'Prevention of Cruelty to Animals Act, 1960'. (The Government is also sitting tight on the proposal to amend this law for the last three years). The State laws enacted by various States are devised in such a way that they promote slaughter rather than curb it. The criteria made applicable for slaughterable animals are only on statute books and are rampantly flouted. In many Acts there are age-based restrictions for animals that can be slaughtered. In many cases such prescribed ages are between 12 to 16 years. However, there is an inherent contradiction between the legal situation and the demand of export markets. Export markets demand meat of young and healthy

animals so that it is tasty and disease—free. The local laws permit slaughter of only aged animals. This contradiction is unbridgeable and the demands of the export market obviously prevail, whereby the country is loosing its productive, precious animals. The corruption bred on the sidelines is also unimaginable.

48. The Livestock Census is a quinquennial exercise and, every 5 years, the States are supposed to conduct the Census. The State figures are consolidated at the national level and the last such consolidated figures at the National level are available only for the year 1992. Thereafter, figures at the National level are not available and it is anybody's guess as to what is the livestock population of the country. May be the population has dwindled so much that the Government is wary of publishing the figures! Nonetheless, under the direction of FAO, all Government documents start with the stereo-type rhetoric that India has the largest livestock population.

49. The value of meat exported from the country has been growing by leaps and bounds, as the following figures indicate.

Export of Meat and Meat Products from India

Year	**Buffalo Meat**		**Goat/Sheep Meat**		**Total**	
	Qty.	Value	Qty.	Value	Qty.	Value
1976-77	8302	665	3119	402	16644	1474
1977-78	18595	1461	6837	915	28167	2992
1978-79	15911	1271	7106	999	25595	2497
1979-80	25937	2229	6790	894	35586	3506
1980-81	41732	3750	1383	200	47758	4981
1981-82	46397	4668	7826	1321	58186	7015
1982-83	38352	7142	N.A.	N.A.	40374	7530
1983-84	32908	6338	N.A.	N.A.	34465	6636
1984-85	34588	4346	13385	272	50561	5023
1985-86	10579	2408	24551	3774	37330	6694
1986-87	36064	4584	9378	2297	46888	7488
1987-88	51540	6704	7960	2191	59500	9395
1988-89	N.A.	N.A.	N.A.	N.A.	N.A.	9800
1989-90	65000	8500	9000	3500	N.A.	12000
1998-99	153956	N.A.	8648	N.A.	N.A.	69130
1999-00	167291	70642	12419	9090	N.A.	79732
2000-01	288027	N.A.	11932	N.A.	N.A.	137504

Note : Quantity in M.T.; Value in Rs. Lakh, Total includes other meat products also besides buffalo meat and goat/sheep meat. *Source : APEDA and Ministry of Food Processing Industry*

The figures of total meat production in the country are as under:

(Quantity in M.T.)

Year	Buffalo Meat	Mutton & Goat meat
1993	11,82,000	6,23,000
1994	12,00,000	6,36,000
1995	12,04,000	6,47,000
1996	12,04,000	6,69,000

Source: 'India' Series publication of Govt. of India

50. Not satisfied with this indiscriminate slaughter of animals, the Planning Commission has grand plans to increase it further and convert the entire country gradually into a country of slaughter houses. In a Chapter entitled "Review of Past Performance and Assessment of Future Needs", which is part of its Report, the Working Group on Animal Husbandry and Dairying, set up by the Planning Commission to prepare proposals for the 10th Five Year Plan, has reported that a ban on meat exports, as demanded by a number of organisations would not be in the interest of livestock producers nor in the national interest. An extract from the Report of the Working Group is at **Annex III (3)**. The relevant extracts from the report of the Panel No. XI on the Meat Sector of the Working Group are given at **Annex III (4)**.

51. The Working Group on Animal Husbandry and Dairying, which in turn formed 15 sub-Groups, including one on the Meat Sector. One would be horrified to read the report, which recommends an aggressive thrust to increase the slaughter rates, modernisation of existing slaughter houses, setting up more and more mechanised slaughter houses, removal of the impediments in the export of meat and recommends various steps in those directions ! One need not be surprised by these recommendations of the meat sector Sub-Group, because there were large meat-exporters as the Members of this Group, including the Chairman. The terms of reference of the sub-group are also worded with a heavy bias in favour of meat exports and read as under:

a) To critically examine the constraints affecting development of organised meat sector for sustainable animal production.

b) To suggest measures necessary for promoting meat exports.

c) To assess the policies presently in force and changes needed to meet global challenge.

52. The whole Report of the Meat Sector sub-Group goes against the campaign to ban meat export from the country and this has to be resisted lest it becomes part of the Plan itself. Meat exports have dealt a death- blow to the economy of the Nation to satiate the greed of a handful of people, with the tacit support, patronage and encouragement of the Government. This approach needs to be resisted tooth and nail, to force the Government to drop its plans in the field of meat export.

53. The chemical fertiliser lobby, the meat lobby and the leather export lobby have common vested interests and appear to have formed a cartel, which has a stranglehold on the Government and the bureaucracy. The hue and cry of the entire nation to ban meat exports is stone-walled by these powerful lobbies.

54. No comparative study has been made about the advantages and disadvantages of meat exports. In India, animals are reared primarily for the benefits derived from their dung. If the meat export policy is evaluated only on the basis of utility of dung, it would prove that banning meat export is more in the interest of the country than earning a thousand crore rupees of foreign exchange. This will be proved by the following analysis.

Some Startling facts about loss due to meat export

55. Considering the broad product-mix of export of meat (buffalo meat and sheep/ goat mutton) in the project of M/s. Al-Kabeer Exports Ltd., it has been calculated that 67 lac buffaloes and 36 lac sheep/goats are required to be slaughtered annually, in order to meet the projected 10th Five Year Plan target of annual export earning of Rs.2,000 crores. Taking the calculations involved in study on Al-Kabeer, which are supported by information/statistics contained in official sources, the following calculations gives extrapolated figures for the increased number of animals to be slaughtered on the national or Macro level, during the 10th Plan period.

Economic Loss due to loss of Buffalo dung :

A total of 67 lakh buffaloes are required to be slaughtered for annual earning of Rs. 2000/- crores. Assuming that a buffalo could live for another 5 years before its natural death and that one buffalo produces 5.4 tons of dung per annum, then:

Availability of dung from 67 lakh buffaloes for a period of 5 years @ 5.4 tons/annum will be

= 67 lakh x 5.4 x 5 = 1809 lakh tons.

Farmyard manure that can be made out of this dung will be= 1809 x 2 = 3618 lakh tons.

Land that can be cultivated using this farmyard manure will be 482.4 lakh hectares.

Foodgrains that can be produced on these 482.4 lac hectares of land will be 666.68 lakh tons, without the major cost of chemical fertilisers.

The total value of foodgrains thus produced will be Rs.27,592.42 crores.

Fodder which can be produced as bye-product of the above foodgrain production will be 20,000 lakh tons, sufficient to feed 555.57 lakh buffaloes for a year.

The above quantum of foodgrains produced at substantially low cost can meet the foodgrain needs of 37 crore human beings for a year.

Employment generation from dung of buffaloes
(An alternate advantage)

Wet dung available from 67 lakh buffaloes @ 5.4 tons/annum will be 362.40 lakh tonnes.

Dry dung available will be 181.20 lakh tonnes (taking 50% as loss of humus content and the portion of dung which is not collectable)

From 181.20 lakh tons of dry dung, 1812 crore dung cakes may be prepared (each weighing 1 kg.)

These dung cakes are saleable at prices varying from 25 to 50 paise each in villages and at Rs.1/1.50 each in towns. Even taking the lowest price (0.25 paise), the value of these dung cakes will be Rs.453 crore.

In villages, mainly women are engaged in collection of dung and selling the dung cakes. Taking Rs.250 per month as sustenance income for one woman in rural area for livelihood, she has to sell around 1000 dung cakes per month and 12,000 per year. So out of 1812 crore dung cakes, 15.10 lakh women can earn sufficient amount for their livelihood.

Employment generation from sheep

a) For the above product mix, and to meet the projected targets of export earnings, 36 lakh sheep are required to be slaughtered. Presuming that 18 lakh were male and 18 lakh were female, then milk yield from 18 lakh female sheep can provide employment to 72,000 persons (based on field study conducted by experts, it is found that one female goat can generate net income of Rs.120 p.a. and the same basis may be adopted for earning from female sheep. (Ref. wool and woollens of India, Jan. - Mar. 1993, page 30)

b) Wool available from 36 lac sheep will be 54 lac kg/annum @ 1.5 kg. per annum per sheep. Current prices of raw wool are Rs. 60 per kg. So total value of wool yield from 36 lac sheep comes to around Rs.32.40 crores, which is sufficient to provide employment to 1,08,000 (1.08 lakh) persons.

Thus total employment/livelihood generation from the animals to be slaughtered will be;

i)	Employment from dung of buffaloes	=	15.10 lakh
ii)	Employment from milk of sheep	=	0.72 "
iii)	Employment from wool of sheep	=	1.08 "
	Total		**16.90 lakh**

Buffalo Dung as fuel (An alternate advantage)

If the entire quantity of dung which is available from buffaloes i.e. 362.40 lakh tons per annum is used to meet the fuel needs alone, then dry dung that may be available will be 181.20 lac tons in the form of dung cakes.

Presuming that 10 kg. of dung cakes can suffice daily fuel need of a family comprising 5 members, then 181.20 lac tons can provide fuel to 49.64 lac families per annum.

A family comprising of 5 members will need 1 cylinder /month i.e. 12 per year and the total cost will be 12 x 240 = Rs. 2,880 per annum. So 49.64 lac families will have to spend 49.64 lac x 2880 = Rs.1429.63 crores.

By-product of this fuel will be ash, which can be used for cleaning utensils. People have to spend around Rs. 200 p.a. on cleaning powders to clean utensils. Thus 49.64 lac families will have to spend 49.64 lac x 200 = Rs. 99.28 crores for cleaning powder.

Total Saving	
from using dung as fuel	Rs.1429.63 crore
from using dung ash as cleaning powder	Rs. 99.28 crore
Total Saving	Rs.1528.91 crore

In the absence of L.P.G. or kerosene, villagers cut trees for their daily firewood requirement. Since dung of one buffalo per annum is equivalent to fuel obtained by cutting 6 trees, 67 lakh buffaloes will save 4.20 crore trees annually. The ecological advantage of this is incalculable.

Meat exports and water

As per the report of an export-oriented mechanised slaughter house, it requires 5 lakh litres of water /day for producing 5000 tons of meat p.a. Taking 300 working days, the total water requirement will be 1500 lakh litres for 5000 tons i.e. production of 1 kg. of meat requires 30 litres of water.

The annual meat production would be

67 lakh buffaloes x 75 kg. = 5.025 lakh tons
36 lakh sheep x 11 " = 0.396 " "

5.421 lakh tons

To produce 5.421 lakh tons of meat, the Nation has to squander 5.421 lakh tons x 30,000 litres = 1626.3 crores litres of water, which is sufficient for meeting annual drinking water needs of 90.35 lakh people (taking 5 litres per day as the average requirement of one person).

WHEN there is an acute drinking water shortage all over the country, as illustrated by the statistics of shortages of water in major cities of the country as shown below;

(in Million gallons)

S. No.	City	Requirement	Availability	Availability as % of req.
1	Bombay	750	530	70%
2	Delhi	650	400	61%
3	Calcutta	300	230	76%
4	Bangalore	246	93	37%
5	Hyderabad	160	90	56%
6	Ahmedabad	150	110	73%
7	Madras	100	55	55%

(Ref. Times of India dated 14-10-1994 page 10).

WHEN villagers have to travel 5/10 km. daily to collect drinking water for their requirement,

WHEN our ground water resources are becoming scarce day by day due to over-exploitation,

WHEN there are inter-state disputes for sharing of river waters -

Is it in the interest of the nation to squander such large quantities of potable water for meat exports?

Dung as fuel

The utility of dung from the point of view of fuel will be clear from the following analysis also:

The frequent increases in administered prices of Petroleum products imposes a hefty burden and throws the nation's economy and the budget of the common man out of gear. The Government is caught in a cleft stick by adopting the energy-intensive machine-based model of economic development. Its oil pool account is stated to be having a deficit of more than Rs.20,000 crores, even after repeated annual increases in the prices of petroleum products. Right from the Prime Minister to the petty officers of the Petroleum Ministry, no one really knows what to do. The chasing of deficit will be unending, even if petrol prices are raised to Rs.100 per litre or gas cylinder is sold for Rs.500/-! These sources of energy are unsustainable at any level of prices.

One has to look for the solution for this and the only solution is — cattle and cattle dung. If sufficient dung is available, the deficit of oil pool account can be wiped out in one single year. Shouldn't it then catch the attention of the powers that be? It is magic, but a simple magic. A small calculation will exhibit the immense potential of utility of dung.

India has a population of 1000 millions, 70% of which live in rural areas, which means that there are 700 million people living in the rural areas of this country. Taking an average of 5 members to a family, this makes 140 million rural families. Due to non-availability of dung, these families use other types of fuel including LPG or fire-wood, which depletes our forest reserves. For the purpose of costing of fuel, let us presume that these families use LPG cylinders. On an average, a family of 5 needs one LPG cylinder per month. At the revised rates, an LPG cylinder costs Rs.250/-, which means annual expenses of Rs.3000/- and for 140 million families it will mean Rs.4,20,000 millions or Rs.42,000 crores. If only dung was available to all these families for making dung cake fuel, the nation would be relieved of financial burden of Rs.42,000 crores and will not that wipe out the deficit of oil pool account, will that not save our forest reserves from dwindling? The above working is based on the subsidised rate of Rs. 250/- per cylinder. There is yet a subsidy burden Rs. 150/- per cylinder on the Government even after the latest price rise. If this was to be considered it would relieve the subsidy burden on the Government by Rs.25,200 crores.

It is not contended that the entire Indian population uses LPG cylinders as cooking fuel. The LPG cost is taken to indicate the fuel cost for cooking and to show the potential of dung cakes which can be freely available at the door step of the rural user.

According to the report of Fire Wood Study Committee appointed by the Government of India, 85% of extraction of wood from the forest is for fuel. Protection of the forests would protect soil from erosion, resulting in non-siltation of river beds and dams, resulting in less of floods and storage of water for longer period, providing water for thirsty humans and cattle throughout the year and so on. The list of advantages is endless.

56. Coming back to the starting point, this propitious circle (as against the vicious circle of petroleum products) can start with the starting point of protecting and preserving our cattle and cattle dung which needs in the first phase, banning of export of meat from the country; and in the second phase reduction in conspicuous consumption of meat within the country. Given the political will, this is a simple task. However, mired in partisan politics, vote banks, the giant financial stakes vested in the fertilizer, leather and meat lobby, this is a gigantic task. The choice before the people is clear — whether they want to continue to bear the ever increasing burden to pamper the vested interests and the politicians or whether they want to become selfish and see their interest in preserving cattle and thereby cattle dung?

Conflict of meat export policy with Constitutional obligations

57. Apart from the above economic analysis once the Constitutional obligation of the 'STATE' towards living creatures, particularly, livestock population is understood, on the touchstone of the Constitution, a few relevant questions arise in respect of existence, growth, or modernisation of slaughter houses with increased capacities of killings per hour, or otherwise, for the Meat Industry as a 'trade', particularly by the 'State' by sanctioning, promoting, protecting and nursing the export sector for the sake of foreign exchange needs.

First, it is to be realised that catering to the economic ambitions of a few in the trade, or earning small foreign exchange for a certain period is no compensation to irreversible situation that the Country might face in terms of its National animal wealth, and cancerous attack on the ecological base and cultural system, which cannot be retrieved at any cost. That means that Country should be prepared to pay a heavy price in the long term for small gains in the present, sought to be had by nursing growth of Meat Sector, for export as well as domestic business.

Second, even if we concentrate on the existing Constitutional provision of freedom of occupation, trade or business, Clause (6) of Art. 19(1) empowers the 'STATE' to impose reasonable restrictions to the exercise of this right in the interest of general public. The power inherent in the State, itself does not permit the 'STATE' to cater to the needs of Meat Industry, when it is not in the interest of general public. Obviously, as discussed, hereinbefore, the patronising of Meat Industry cannot be in the larger interest of the public in the long run. It follows, therefore, that any trading activity, which is not in the interest of general public, can even be totally banned. Even 'State' itself is under no obligation, whatsoever, to provide Meat Industry by extending the facilities of Slaughter House. In Supreme Court Judgements also it is held that at all event, the interest of a small class must yield place to larger interest of society, as a whole.

Third, can Municipal Slaughter House, vested and managed by the Boards, Municipalities or Corporations, as executive instruments of the State, allow the citizens to exercise freedom of trade and business, in a manner, which throttles and violates the citizen's Fundamental Duty in the Constitution to have compassion for living creatures? The rule of Harmonious Construction will negative such an exercise of freedom of trade.

Fourth, whether freedom of occupation, trade or business, itself gives rise to freedom to kill any animal or any number of animals? What is the trade or business activity in the act of taking life out of an animal without returning anything back to animal kingdom, in consideration; if all business or trade has its basis in one or other consideration?

Fifth, the freedom in this regard, availed by people in the slaughtering business, is destructive of the Environment and an epitome of destructive relation of man with animals, who cannot reason out with man. Today's Public Policy of Law to protect Environment by defining environment legally, clearly negatives the freedom so far availed.

58. The government is protecting its policy of meat exports taking recourse to the untenable argument about fundamental rights of the butchers. This issue also has been legally settled in a judgement of the Hon'ble Allahabad High Court, known for delivering a series of bold judgements. It has added one more feather in its cap by this Judgement. Though running in just two pages, the Court has delivered a landmark judgement, which answers a very vital question, the answer to which was long awaited from the judiciary — Can killing of animals i.e. taking away the life of an animal be protected as a fundamental right under Chapter III of the Constitution of India? In very clear terms, the Hon'ble Court has said '**NO**'. This 'No' has been supported by sound arguments and legal provisions. The Hon'ble Court has observed as under:

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> *"The Court is of the view that the Constitution of India does not permit any citizen to claim that it is his fundamental right to take life and kill animals. A butcher may have his profession but he cannot claim it as a fundamental right by the Constitution. Otherwise, it will be a negation of the tenets of our Constitution. The Constitution of India has a chapter on Fundamental Duties. This is Chapter IV-A. Article 51A(g) ordains "compassion for living creatures". Thus, the Court is unable to persuade itself that butchery as a profession can be claimed as a fundamental right of a citizen. That a butcher may slaughter and make a business of it is one aspect of the matter, but, the State can regulate this business".*

The judgement puts a Judicial Stamp on the view that — **"Killing of Living Creatures is Unconstitutional"**

59. Apart from the above observations there is an analysis on the relevance of fundamental rights as far as the activities of killing of animal is concerned. The meat export Policy of the Government and its active all-out support also flies in the face of the fundamental duties contained in the Constitution. The fundamental duties under

article 51A enjoins upon the citizens to show compassion towards all living beings. If this provision is interpreted in its true spirit no one can indulge in the trade of killing of animals, much less the export of meat.

60. The argument of the Government about this sector being a major foreign exchange earner is also no longer relevant or compelling. Our country now has a comfortable foreign exchange reserve of more than 54 billion US dollars and a foreign exchange earning of a 1000 or 2000 crores of rupees from meat export is too insignificant to vehemently hold on to this disastrous policy.

BAFFLING NUMBERS OF ANIMALS SLAUGHTERERED

61. India's economy is based on agriculture and Animal Husbandry. The eternal cycle of *Van Raksha, Bhu Raksha, Jal Raksha* and *Pashu Raksha* is the back-bone of sustainable economy, ensuring a decent and dignified life for even the poorest of the poor. In this background, our animals, particularly the bovine animals (cows and buffaloes) and sheep and goats are to be considered our national wealth, to be preserved, protected and expanded. Unfortunately, this sector has fallen in neglect. The faulty policies of the Government in Agriculture and Animal Husbandry sector have dealt a death-blow to both these sectors. The policy of using chemical fertilisers has spoiled the soil fertility, turning it into barren lands and the policy of cross-breeding has made many of our breeds almost extinct.

62. Apart from these indirect blows, there is direct destruction by way of unfettered slaughter. This activity now enjoys State patronage, protection and active encouragement. There are about 4000 authorised slaughter-houses in the country and more than 1,00,000 illegal slaughter houses. The meat export policy of the Government had added fuel to the fire. Let us analyse and interpret some published statistics.

63. In the year 2000-2001, about 2,88,000 M.T. of buffalo meat was exported (Source: Reply to question No. 3313 in Lok Sabha on 10-12-2001) and the Government claims that this is just 4% of the meat produced in the country (Source: Reply to Question No.1112(H) in Lok Sabha on 23-11-2001), which means that the total buffalo meat production in the country is 72,00,000 M.T. A grown up buffalo yields 75kg. of meat (out of average body weight of 300 kg.). Thus for obtaining 72 lac M.T. about 9,60,00,000 buffaloes are slaughtered !

64. This figure is ridiculous, as the total buffalo population of the entire country was 7,59,66,000 in 1987 and 8,42,06,000 in 1992 according to the census figures published by Directorate of Economics & Statistics, Ministry of Agriculture, Government of India. It is intriguing that no census figures at the National Level are available after 1992 and the Meat Export was given a major thrust after 1992 only. What has been the impact on bovine population after 1992 (after the aggressive Meat Export Policy) is anybody's guess.

65. Anyway, it is quite evident that what is described as buffalo meat is not buffalo meat alone and large numbers of cattle are slaughtered and there is clandestine beef export also, though described as Meat Export. This is corroborated by further analysis.

Take the figures of cattle. The cattle population in 1987 & 1992 was as under:

Cattle	1987	1992
Indigenous Male	9,69,81,000	9,69,38,000
Indigenous Female	9,13,01,000	9,24,29,000
Cross-bred Male	39,51,000	46,59,000
Cross-bred Female	74,62,000	1,05,57,000
Total	19,96,95,000	20,45,83,000

The absolute increase over a five-year period is 48,88,000, which is 2.44% over five years, or annual growth rate of 0.48%, or say just half a percent per annum!

> The female cattle population in 1987 was 9,87,63,000. It can be safely presumed that at least 50% of this population was in the reproductive age-group, which is 4,93,81,500. The bovines bear a calf once every 15 to 18 months. Even if we consider calving period of 20 months, three calves would have been added over a period of five years (60 months) that would have meant an addition of 4,93,81,500 x 3 that is to say 14,81,44,500. Even if we consider infant mortality of as high as 50%, the net addition should have been 7,40,72,250.
>
> At least on statute books, there is restriction of slaughter of calves and young bulls/bullocks (by virtue of age-based restrictions and/or economic viability based restrictions). Thus all these 7,40,72,250 young cattle of up to 5 years of age should have been added to the cattle population of 1987. Thus the 1992 population should have been 19,96,95,000 + 7,40,72,250 = 27,37,67,250. As against this, the 1992 population was only 20,45,83,000. The shortfall of almost 7 crores cannot be attributed merely to natural death of cattle over 5 year period. **Thus it is clear that there is large-scale slaughter of cattle both for indigenous consumption and clandestine exports of beef.**

66. Thus it is now clear that the annual slaughter figure of 9,60,00,000 buffaloes worked out earlier is not only that of buffaloes, but also includes (by way of major component) the slaughter of cattle, specially of younger age-group.

67. This situation concerns every common man of the country. The situation on the legal front is, to say the least, pathetic. Laws with deliberately-kept lacunae, almost total neglect about their implementation or rather active support of implementing agencies, absence of Central Legislation, active and continued thrust in the Five Year Plans on increasing slaughter, the implications of W.T.O. Agreement etc. are all factors which contribute to the continuing and unabated slaughter of cattle in this country, and serious thought is needed on all these issues to devise methods for overcoming this huge problem.

Violation of Cow Protection Laws – Synopsis of findings from questionnaire replies

68. 91 answers were received in reply to the questionnaires sent out by the Commission, most of them being from the District Veterinary Officers. Three Collectors and two Superintendents of Police have also answered. The main questions and answers relating to implementation of the State laws with regard to cattle protection and preservation have been analysed and the findings are as follows:

1) Question: How many licensed or unlicensed slaughter houses are working in your are and how many cattle are slaughtered?

On an analysis of the answers to this question, it is revealed that northern States of the country do not have any slaughter houses, in which any kind of cattle is slaughtered. Southern States have licensed slaughter houses including big abattoirs, such as Deonar abattoir in Mumbai and Al-Kabeer in Hyderabad. It is found that Punjab, Haryana, Rajasthan and Madhya Pradesh are the exporters / supplier states of cattle to Gujarat and Maharashtra. Thousands of cattle reach up to Kerala. The District Veterinary Officer of Hassan (Karnataka) affirms that, in 2000-2001, 5678 old and unproductive bulls/bullocks and 1834 cattle below the age of 15 years were slaughtered. District Veterinary Officer of Gadag (Karnataka) has given a figure of 4634 cattle over 15 or under 15 years of age. DVO of Kannur accepted that slaughter of bullocks is continuing but has not given the number. He has quoted from the sample survey conducted by the State Government and stated that in Karnataka, 774 slaughter houses are licensed and there exists a number of illegal slaughterhouses also. In 1997-98, 4,15,000 cattle were slaughtered in the State in licensed slaughterhouses. District Collector of Palakkad (Kerala) agreed that 2000 cattle are slaughtered per month in his district. All other Authorities give some figures of licensed and unlicensed slaughterhouses but stated categorically that no cattle is being slaughtered, only goats, sheep and buffaloes are being slaughtered.

2) Question: Is illegal transport of cattle taking place within and outside the State. What are the usual routes and numbers of cattle thus transported?

Collector, Dhar (M.P.) accepts that such transport is taking place and stated that 100 cattle per year are illegally transported and some cases were also registered by the police in his District. District Collector, Vellore (T.N.), accepts that from Valajapeth to Chennai, illegal transport is going on. District Veterinary Officer of Hassan (Karnataka) agrees that cattle are transported to Kerala for slaughter.

3) Question: What is the inclination of people in your area for a total ban on cow-slaughter?

Most of the authorities agreed that the people are inclined in favour of a total ban on slaughter of cow and its progeny. Livestock Development Officer, Sholapur, contends that people will like a ban on slaughter of cow only. DVO of Hassan (Karnataka) stated that different gropus have different views.

District Veterinary Officer of Palakkad (Kerala) stated that the majority of the public is against such a ban. DVOs of Nagapattinam and Vellore stated that people are not in favour of such a ban. Authorities of Leh (J&K), Cachar (Assam), Ernakulam (Kerala), Kasareagode, Kannur (Kerala) and Palakkad (Kerala) stated that their people were against the ban on cow slaugter. The concerned officer of Kannur District in Kerala has remarked that 90% of the people of Kerala are non-vegetarians and if the ban is inflicted it will create troubles.

4) Question: Is it correct to state that calves in large numbers are purchased in cattle fairs and are transported in trucks to other States for slaughter?

It is accepted by officials in Raipur (Chattisgarh), Dhar (M.P.), Kannur and Palakkad (both in Kerala), Kota (Rajasthan), Kangda (H.P.) and Koraput (Orissa) that calves in large numbers are purchased but they are carried in herds of 40-50 animals on foot and not by trucks.

5) Question: Is the observation correct that cattle-fairs are organised now-a-days, to facilitate the butchers?
Officials in Raipur (Chattisgarh), Uttarkashi (Uttaranchal), Allahabad (U.P.) and Kannur (Kerala) accepted the truth of this observation. In Kannur, Srikakulam specifically mentioned that mostly butchers attend these cattle fairs and that the same sets of cattle traders are seen in different fairs.

6) Question: Are the over-burdened police reluctant to take any action against cattle offenders?

Authorities from 29 Districts confessed to the truth of this situation. Others have not accepted it, probably because it goes against their own competence and willingness to take action.

7) Question: Do the police in your area refuse to register F.I.R.s against cattle offenders?

No authority has accepted this accusation of inaction or indifference.

8) Question: Are cattle transported to other States through Railway and / or Road transport.

Apart from Allahabad (U.P.) and Sagar (M.P.), no other authority has accepted that cattle are being transported through Railways. The officer from Allahabad agreed that one railway rake was seized. At Sagar (M.P.) also, on rake was seized. Authorities of Vellore, Kangda, Dhar, Hammirpur (HP), Kannur, Bagalkot (Karnataka), Palakkad (Kerala), Bulandshahar (U.P.), Allahabad (UP), Jalore (Rajasthan), Sasar (Haryana), Cachar (Assam) and Raipur (Chattisgarh) accepted that cattle were being transported within and outside their States in trucks.

Officials of Bulandshahar agreed that calves were loaded in large numbers in trucks, with 40-50 calves in one truck being seen some times. Kannur officials accepted that, in 1997, a total of 2,82,566 cattle had come to Kannur in trucks from other States. The position was the same in Palakkad (Kerala).

Authorities of Allahabad stated that cattle were daily going to other States through GT road, although the number per day was only 200. Jalore officials stated that cattle are exported to Ahmedabad in Gujarat from Raniwada and Disa, through Hirapur and Sanchor. District Collector of Bulandshahar (UP) agreed that thousands of cattle are transported by trucks but that, according to information, these animals remain within the State.

9) Question: Is the Government Administration vigilant or indifferent about implementation of cow preservation laws?
Almost all the authorities stated that they are vigilant, but some veterinary officers and officials from Veterinary Universities sated that, some times, Police authorities were indifferent.

10) Question: Is any disciplinary action taken against Police authorities for negligence in implementation of cattle protection laws?

The officials from Allahabad stated that on Inspector, Kuldeep Tiwari, was transferred from Daraganj for his dereliction in this regard. None of the others have answered this question.

11) Question: Are huge numbers of cattle being loaded into trucks, in violation of the stipulations of the Prevention to Cruelty to Animals Act and Rules made there under with regard to transport of cattle?

The Bulandshahar authorities agreed that calves in huge numbers are cruelly loaded by cattle traders. Allahabad official accepted this observation and stated that there is one Kureshi Suyed Ajhmed, who is having a regular transport agency for such illegal transport of calves. Collector of Jalore (Rajasthan) accepted that 235 cattle are transported from his District to Ahmedabad (Gujarat) by the cattle traders of Gujarat, on a regular basis.

Compliance or non-compliance of cow protection laws (contributed by Sh.K.C.Mehta)

69. Although the laws regarding the prohibition of slaughter of cow and calf have been made by almost all the States, except Kerala and North Eastern States, but the compliance of these laws have not been enforced by the States and enforcing agencies like Police and District Administration.

70. The list of prevalent laws enacted by the States with regard to prohibition of slaughter of cow and its progeny would reveal that, there is a complete prohibition on all slaughter in Rajasthan, Haryana, Punjab, Jammu and Kashmir, Delhi and U.P. However, in all other States, except West Bengal and Assam, while the slaughter of

cow and calf is completely prohibited, the slaughter is permitted of old, infirm and uneconomic bull and bullocks, after obtaining the certificate from the Veterinary officer concerned.

71. In Assam and West Bengal, not only bull, bullocks but cows over 12 years of age can be slaughtered, after getting a certificate from the Veterinary doctor.

72. There is complete absence of law with regard to slaughter of cattle in Kerala and North Eastern States. In Kerala, there are Panchayat laws, which are defunct and are not being observed, while in some of the North Eastern States, there are some circulars, which are again not being implemented.

73. The laws, even in Sates which do have cattle protection laws, are being mostly violated on account of powerful meat and butcher lobbies, cattle trade mafia and their collaboration with police and administration. This is happening in Rajasthan, Madhya Pradesh, Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu, Bihar and West Bengal etc. The Mewat area in Haryana, which is inhabited by minority community Mews and the bordering areas of Rajasthan and Uttar Pradesh, such as Mathura, Alwar and Bharatpur, is a paradise for beef traders. Here mass killings of cows takes place illegally and openly in small villages, mostly in areas between 2 hills or sometimes even in the houses in the villages. A survey conducted by Acharya Baldevji gives a very alarming picture, where thousands of cattle have either been taken for smuggling or are butchered.

74. The list of total number of challans put up District-wise, shows that, in Feralpur, in 2001, 15 challans were filed and about 500 cows and calves were either butchered or taken for smuggling. The names of the accused are mostly that of Mews. In another police station, Nuh, 26 challans were filed and the number of cows and calves is about 600 and all the accused persons are Muslim butchers or Kasais.

75. Similarly, in Thana Hadel, 15 challans were filed and about 400 cows, calves and bulls were seized. All accused are Muslims. In Nagina police station, 34 challans were filed and 600 animals were involved, the accused belonging to Mews or Muslim community. In Punhana, 36 challans were filed, the number of animals involved being 1000 and again, the accused are Mews and Muslim butchers. Hanahathin accounts for 23 challans, with about 300 claughtered bulls, bullocks, cows etc. and the accused again being Maives or Kasais.

76. In Mewat area of Mathura and Alwar, one Shri Sukhdev Singh was killed by the butchers. The Animal Welfare Board of India has given the Posthumous Prani Mitra Award to Shri Sukhdev Singh.

Auction of Cows by Temples

77. As pointed out by Smt. Gohar Aziz, Member, National Commission on Cattle, temples in our country are donating cows and calves as "Prarthana". In Tamil Nadu, there has been a very condemnable action of auction of such cows, which are bought by the butchers. The temples, which own vast extents and areas of land, should maintain the cows within their temple complexes and their Goshalas, rather than

auctioning them, knowing full well that the auctioned cows will land up under the butcher's knife. Since most of the temples are under Government run Trusts, there should be a policy banning the auctions of the cows and calves.

78. Smt. Aziz has also suggested that, any legislation for ban on slaughter must also contain a clause banning transportation for slaughter or for trades. A true and real census of livestock must be conducted to know the growth or decline in cattle numbers. Goverment must institute national awards for local breeders and good Goshalas. Smt. Aziz also feels that working bullocks in the Municipality areas, Panchayats, Town Panchayats and Corporations must be given retirement with pension, and should not be auctioned for slaughter after they can no longer work.

Part II of the Committee's Report

79. Shri Udai Lal Jalori, Consultant for the Committee on Administration Cattle Laws has prepared a detailed report (in Hindi), which is included in Vol. III of this Report, on the instances of flagrant and blatant violation of the cattle laws in the various States. He has given a thorough analysis, along with the details of the dates and name of persons involved in the instances. Of course, the actual number of such incidents are too large for all of them to be recorded, but the cases have been cited just to show the extent of the problem. Unless all sections of society, including members of the public, farmer owners of cattle, non-governmental agencies and Government agencies, especially the enforcement agencies, get together and join hands with each other to implement the laws of the land, even as they stand today, much of the problem and suffering of the cow and its progeny will be mitigated.

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SUGGESTIONS / RECOMMENDATIONS OF THE COMMITTEE

1) The Government of India must enact a Central Legislation for protection of cattle wealth and totally prohibiting its slaughter. The inclusion of the subject of animal husbandry in the State list is not a impossible hurdle to overcome. This issue should be considered as an issue of vital national interest and rising above politics, the Parliament must enact a Constitution amendment to bring the subject in the Concurrent List to enable the Parliament to enact the law.

2) In the meantime, all the State laws should be studied by a Central agency (if possible by the Law Commission) and they should suggest amendment in laws to bring about consistencies in definitions and other provisions. The provisions regarding definitions, scope, burden of proof, cognizability of the offence, penal provisions etc. should be made uniform. The arbitrary powers given to the Competent authorities (which are mainly veterinary doctors) should be withdrawn and some other arrangement must be thought about.

3) The Home Ministry should direct the States to constitute special squads in the Police department to check illegal slaughter, illegal transportation within the States and outside the State, particularly to Kerala and West Bengal. They should be directed to extend full support, co-operation and protection to animal welfare activists. They should also be directed to immediately register FIRs, institute legal cases and ensure their speedy disposal, so that the culprits are punished as per law.

4) In many State Acts there are a number of exemptions from the main provisions imposing complete / partial ban on slaughter. The exemptions are used more as rule and the very purpose of the legislation gets defeated. Hence any type of exemptions should not be provided in the Act.

5) Special arrangements to check smuggling on the boundaries with Bangladesh in the East and Pakistan in the West (Gujarat / Kutch borders) should be made. If necessary a section of BSF or Army may be entrusted with this responsibility.

6) The Government should impose a total ban on meat exports, which alone can check slaughter of cattle for clandestine export of beef in the guise of buffalo meat.

7) Express provisions for granting custody of cattle, which are seized while being taken for illegal slaughter, to the animal welfare organistions must be made in all the State laws together with provisions for payment of maintenance charges to these organisations.

8) Booking of cattle for transportation for any purpose by railways must be completely banned. The high cost of road transportation will act as some impediment to illegal transportation for slaughter.

9) The Government should come out with provisions in State laws for confiscation of vehicles (trucks/tempos) used by the meat traders for illegal transportation of cattle. Similar provisions for confiscation of vehicles, used in theft / smuggling of forest produce, exist in forest laws.

10) The Transportation of Cattle Rules under the Prevention of Cruelty to Animals Act, 1960 should be strictly implemented and, even otherwise, the implementation agencies must be strengthened and oriented to the need for cattle preservation.

11) The penal provisions in the State laws as well as in the Prevention of Cruelty to Animals Act should be more stringent with higher fines and longer terms of imprisonment. There should also be a provision for automatic review of acquittal orders of the Lower Courts by a superior court.

12) Temples should not be permitted to auction the cows and calves received as 'gifts' or 'donations' from devotees.

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CHAPTER – IV

REPORT OF

COMMITTEE ON LEGISLATION

Hon'ble Shri Ranganath Misra, M.P. **Former Chief Justice, Supreme Court of India**	**Convener**
Shri P. Haridas, Advocate	**Member**
Shri A.V. Sharma, Advocate	**Consultant**

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CHAPTER IV

CATTLE LAWS AND LEGISLATION

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CHAPTER IV

LEGISLATION

PART I

(By Justice Ranganath Mishra)

1. Human efforts for affording protection to the cow are clearly traceable from Vedic Times. With the discovery of milk as life's nectar, early human society started looking upon the cow as friendly animal and soon started worshipping the species. Regard for the cow became a Universal human response and, in the Vedas it was referred to with reverence as a holy animal.

2. Some of the references described the animal as Vishnu, the Lord of life. The Atharva Veda forbade harm to the cow, saying:

"The slaughter of an innocent cow is an awful deed. Slay not a cow."

It further mentioned that both Gods and mortals depend for life on the cow. Similar eulogising references appear in the Rigveda.

3. Mankind realized that cow's milk was the sustaining factor of life and, therefore, the cow had to legitimately be worshipped and protected. Some of these great sayings are found extracted in the judgement of the Supreme Court in the Constitution Bench decision in the case of Mohd. Hanif Quareshi Versus the State of Bihar, A.I.R. 1958 S.C

4. As time rolled by, Mankind equated milk to nectar and its producer as 'Mother'. In India this position is almost universal. There have been occasions when the cow, as a valued possession, has been offered to Gods by way of sacrifice and the meat has been taken as the residue of the offering. Such occasions have, however, been rare and the practice has not been widely in vogue nor encouraged.

5. It appears that the Cow was gradually elevated to the status of Divinity, and named as Kamadhenu, as she was capable of fulfilling all the desires of her owner. Kautilya's Arthasastra has a special chapter (Ch. XXIX), which deals with "superintendence of cows" and describes the duties of the owner of cows, which are referred to in Ch. XI of the book on Hindu Law by Dr. Ganga Nath Jha.

6. In the Mughal period, (as observed by the Supreme Court in Hanif Qureshi's case and later in the case of Hashmatullah), the Moghul emperors had been issuing 'farmans' and 'fatwas', which were enforceable by law, prohibiting the slaughter of cows either totally or on specified occasions of Hindu festivals.

7. The Muslim Emperors of India - Babar, Humayun, Akbar and Bahadur Shah, in their respective regimes, had prohibited cow slaughter with a view to respecting the popular sentiment of the Hindu brethren and there was a general support for the view.

8. From the speeches during the Constituent Assembly Debates, particularly the speeches of Pandit Thakur Dass Bhargava and Seth Govind Dass, it appears that there were laws restricting cow slaughter even during the British period. By and large, the British, in order to feed their armies, British nationals being habituated to eating beef, allowed cow slaughter on a large scale; yet, on occasions, they even protected the cow and punished those who were indulging in cow slaughter leading to riots.

10. In the Constituent Assembly in the course of the Debate on Article 48 of the Constitution, two powerful Muslims Members – Z.H. Lari and Syed Mohammad Saidulla, pressed for full protection of cows and strongly pressed for stopping cow slaughter incorporating prohibition of such slaughter as a Fundamental Right. Hindu members, including the Prime Minister and Dr. Ambedkar, while supporting the stand in principle wanted that the protection should be incorporated in the form of Article 48, which stan thus:

"The state shall endeavour to organize agriculture and animal husbandry on modern a scientific lives and shall, in particular, take steps for preserving and improving the breeds and prohibiting the slaughter of cows and calves and other milch and draught cattle"

11. Soon after the Constitution came into force, most of the States legislated for preservation of the cow and prohibition of its slaughter following the Directive Principle in Article 48. The Assam Cattle Preservation Act came in 1950 itself and the following legislations were brought into the statute books in different States.

i. The Bombay Animal Preservation Act, 1954

ii. The Bihar Preservation and Improvement of Animals Act, 1955

iii. The Punjab Prohibition of Cow Slaughter Act, 1955

iv. The Himachal Pradesh Prohibition of Cow Slaughter Act, 1955

v. The Uttar Pradesh Prohibition of Cow Slaughter Act, 1955

vi. The Tamil Nadu Animal Preservation Act, 1958

vii. The Madhya Pradesh Agricultural Cattle Preservation Act, 1959

viii. The Orissa Prevention of Cow slaughter Act, 1960

ix. The Pondichery Prevention of Cow Slaughter Act, 1968

x. The Karnataka Prevention of Cow Slaughter and Cattle Preservation Act, 1964

xi. The Maharashtra Animal Preservation Act, 1976

xii. The Andhra Pradesh Prohibition of Cow Slaughter and Animals Preservation Act, 1977

xiii. The Goa Daman & Diu Prevention of Cow Slaughter Act, 1978 and The Goa Animal Preservation Act, 1995)

xiv. The Delhi Agricultural Cattle Preservation Act, 1994

xv. The Rajasthan Bovine Animal (Prohibition of Slaughter and Regulation of Temporarily Migration of Export) Act, 1995.

12. Some of these Acts have application beyond the present State limits, on account of their being covered by the laws existing before reorganization of the States. All Indian States today have legislation on this score, excepting the State of Kerala.

13. The foundation of all these legislations is the Directive Principle of State Policy contained in Article 48 of our Constitution. Though the theme of the law in these different statutes is more or less the same, the respective legislatures have perceived the problem differently and sought to provide remedies & treatments to the problems, in their own ways and focused the legislations to cover them.

14. The problems relating to the matter are more or less common to the whole country. The Commission has already pointed out that, throughout India, the cow has been held in great reverence and is worshipped as a Mother. The traditional culture of the majority of the people is opposed to cow slaughter and the sentimental approach is in favour of preserving the cow and prohibiting its slaughter. The problem throughout the country being one and the same, on this score, remedial measures to meet it have to be of a common pattern. The interaction of the Commission with members of the public in different parts of the country during public hearings, revealed that most of them were in favour of a common central legislation, which would be helpful to tackle the problems and a uniform treatment of the same would also facilitate implementation and enforcement of the law. Emergence of a common regulated conduct throughout the country would bring about a uniform reaction, leading to generation of a common culture.

15. There are two ways in which Parliament can legislate on the subject. The simple process would be to bring about an amendment of the Constitution and shift entry 15 (relating to preservation, protection and improvement of stock and prevention of animal diseases) of List II of the Seventh Schedule of the Constitution to List III of the same Schedule, which is the Concurrent List or the list of subjects on which both the Centre and the States are competent to legislate. There have been several such amendments. For example, Education was an item on List II and by the 42nd Amendment in 1976 was shifted to the Concurrent List as item No. 25 of List III. This would require an amendment within Article 368 of the Constitution.

Recommendation No.1

16. The Commission, therefore, recommends that early steps may be taken for a Parliamentary Legislation applicable to the whole country by repealing various legislations now in force.

17. Preservation, protection and improvement of stock and prevention of animal diseases is presently an item at Entry No. 15 of List II (State List) of the Constitution's Schedule VII. Unless, by an appropriate amendment, the entry for this head of Legislation is taken from List II and put in List III (Concurrent List), Parliament would not have the legislative competence to bring forth a Central Legislation on the subject. A similar amendment had been made in 1976 (42nd Amendment) when the entry of Education was taken out of List II and put in List III.

Recommendation No. 2

18. The Commission is of the view that Entry 15 of List II should be shifted to List III to enable Parliament to give proper attention to the matter and bring about proper legislation.

19. In the case of Hanif Quareshi Vs. State of Bihar (AIR 1958 S.C. p. 713), a Constitution Bench of the Supreme Court has held that butchery is a profession and citizens have a fundamental right under Article 19 (1) (g) to carry on the same, subject to sub-article (6). Within the parameters of the law, as settled by the Supreme Court, two issues that arose have been examined by the Commission. A butcher slaughters various animals, apart from the bovine group, for carrying on his profession and restriction has been sought to be imposed on slaughter of the cow. The Constitution Bench of the Supreme Court, on examining the legal position, has come to the conclusion that.

i. A total ban on the slaughter of the cow of all ages and calves of cows and of she buffaloes, male and female was quite reasonable and valid;

ii. A total ban on the slaughter of she buffaloes or breeding bulls or working bullocks (cattle as well as buffalo) as long as they were capable of being used as milch or draught cattle, is also reasonable and valid;

iii. A total ban on the slaughter of she buffaloes, bulls and bullocks (cattle and buffaloes) after they ceased to be capable of yielding milk or of breeding or working as draught animals, was not in the interest of general public and was invalid.

The Supreme Court was examining the validity of the provisions of the Bihar Preservation and Improvement of Animals Act, the U.P. Prevention of Cow Slaughter Act and the C.P. and Berar Animal Preservation Act.

20. Article 48 of the Constitution, which provides directive principles by way of guidelines of state policy on the subject, requires steps for preservation by prohibiting the slaughter of cow and calves and other milch and draught cattle. On an analysis of the provisions of these statutes in the backdrop of the Directive Principles, the Supreme Court came to its conclusions indicated above. In view of the first two conclusions, supporting tenability of ban on slaughter by law, the question for consideration is in respect of bulls, and bullocks after they have ceased to be capable of breeding or working as draught animals. The Supreme Court has held that banning slaughter of these animals is not in the interest of the general public.

21. Before the Supreme Court the questions were examined from a limited angle and the matter was not examined in the broad prospective. We have pointed out with reference to Constituent Assembly Debates that Muslim representatives were prepared for a total prohibition of slaughter of cow and its progeny, including bulls and bullocks of all ages, and it was on the insistence of Pandit Nehru and Dr. Ambedkar that the ban in that form was not incorporated in Article 48.

22. The Supreme Court came to the conclusion that sacrifice of a cow on the occasion of the Id Kirban is not a religious mandate. The slaughter of the animals has, therefore, no religious sanction and the issue has to be considered on its own perspective.

23. The considerations, which weighed with the Muslim members to volunteer consent for total ban are still of considerable importance and are a matter of great consequence. Half a century back, it had not been known to Man that cow urine and cow dung have great medicinal value and serious ailments are curable by their use. Bulls and bullocks, have great utility to human beings and even if bulls and bullocks cease to be capable of breeding or working they remain useful till death, as yielders of urine and dung.

24. The Supreme Court did not go into the question of animal rights (corresponding to human rights) of the animals in question, as that concept had not developed by then. Right to life is the most important one for all animals having life. The Constitution provides right to life as a fundamental one. It has been the accepted principle in this country that life, whether human, animal or even plant, has to be respected. This outlook had provided great heights to our culture. The Father of the Nation had preached that whatever Man couldn't create, he cannot destroy.

24. By the time Hanif's case was examined by the Supreme Court in April, 1958, Fundamental Duties of Indian citizens were not a part of our Constitution. Article 51A, which was inserted in 1976, provides that every citizen shall have the fundamental duty to protect and improve the conditions of wildlife. If duty is cast to protect wildlife, would it not follow that animals that live with men and serve them by providing the elixir of life should also be protected?

Recommendation No.3

25. The Commission is of the view that, if the decision in Hanif's case operates as a ban to provide total prohibition on killing of bulls and bullocks even after they have ceased to be useful, early steps should be taken to move the Supreme Court for a review of the judgement delivered in Hanif's case, in respect of the third category shown in the judgement.

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Recommendation No.4

26. The Commission is inclined to the view that there should be a provision embodied in the Act recognizing the right of the Indian Citizen to a slaughter-less society of the cattle species and, extending the protection to the two categories now excluded from protection, namely bulls and bullocks after they have ceased to be capable of breeding or working as draught animals should be provided by law.

Recommendation No.5

26. Banning bovine meat does not keep out animal meat from the market. We are not oblivious of the fact that meat of cow and its progeny or beef is cheaper and perhaps is available in greater quantity. The Commission is aware of the fact that a lot of cows and other animals of the species are taken out of India clandestinely. That, however, cannot be a weighty consideration to take the final view. We would like to take notice of the fact that meat-eating is being disapproved by doctors today as not conducive to health. Perhaps bovine meet could be totally avoided even if meat of other animals is taken.

27. **The Commission suggests to the Central Government to create public opinion against beef-eating and stop killing of the bull and bullocks in addition to cows and calves.** A cohesive society is what we in India have been looking for and the Commission is of the opinion that food habits have a contribution to make in this direction.

28. In the course of public hearings at different places, the Commission visited Bhubaneshwar. One of the Members of the Commission informed the Chairman and other Members that she had come to learn that every day cows are slaughtered by the contractor who has undertaken to supply meat to feed animals at Nandankanan, the Orissa government Zoo. The Commission paid a hurried visit to the place and to their utter surprise the Chairman and the members found slaughtered animals being delivered to the Zoo staff and some cows were yet to be slaughtered. Local officers gathered at the spot and admitted that everyday that was being done to provide food for animals. This is an instance to show how the law is not being followed at a place so close to the State capital and Senior officers are a party to the violation. This is not a solitary instance. The provisions are not strictly followed. In some States, exemption from the rigours of the law is provided for the asking.

Recommendation No.6

29. **The Commission recommends that the existing law should be strictly followed and penal action should be effective so that violation is reduced and the law is implemented.**

CHAPTER IV

LEGISLATION

PART II

(By other Members of Committee on Legislation)

1. The Legislative history of Cow Protection can be traced out from the earliest **Vedas, Strutis and Smrithis** and other ancestral religious historical scripts under different captions and headings. The Supreme Court in its judgement in the case of Mohd. Hanif Quareshi versus State of Bihar and others, has observed as under:

> *High esteem was bestowed on the cow as will appear from the following verses from Rig Veda Book VI, Hymn XXVII (Cows) attributed to the authorship of Sage Bhardvaja:*
>
> " 1. The kine have come and brought good fortune; let them rest in the cow-pen and be happy near us.
> Here let them stay prolific, many coloured and yield through many morns their milk for Indra.
> ****
> O Cows, ye fatten e'en the worn and wasted, and make the unlovely beautiful to look on.
> Prosper my house, ye with auspicious voices, your power is glorified in our assemblies.
> Crop goodly pasturages and be prolific; drink pure sweet water at good drinking places.
> Never be thief or sinful man your master and may the dart of Rudra still avoid you."
> *(Translation by Ralph Griffath)*
>
> *Verse 29 of Hymn 1 Book X of Artharva Veda forbids cow slaughter in the following words:*
> "29. The slaughter of an innocent, O Kritya, is an awful deed, slay not cow, horse, or man of ours".
>
> *Hymn 10 in the same book is a rapturous glorification of the cow:*
> "30. The cow is Heaven, the cow is Earth, the Cow is Vishnu, Lord of Life. The Sadhyas and the Vasus have drunk the out-pourings of the cow.
> 34. Both Gods and mortal men depend for life and being on the cow. She hath become this universe; all that the sun surveys is she."

2. In the Moghul period, as observed by the Supreme Court in the above judgement of Mohd. Hanif Quareshi and, later in their judgement in Hashmatullah's case, the Moghul emperors issued Farmans, which were the law and treated as legislation, prohibiting slaughter of cows either totally or on some specified Hindu religious days of functions.

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3. The Ferman of Akbar and on his instructions to Jahangir and Babar's directions and instructions to Humayun and similarly the orders of Aurangzeb and Bahadur Shah, promised a ban on cow slaughter, which was not practiced, thus respecting sentiments of public (Hindus) of those times. The Farmans may be in different languages and in different forms, but the central theme running through all of them is that rulers of India should respect the sentiments of the local people (Hindus) in the matter of treating the cow as sacred and therefore should not hurt their feelings by killing. Since they have been recognized by the Supreme Court in the above judgements right from Md. Hanif Qureshi Vs. State of Bihar (AIR 1958 SC 731) to Hashmatullah Vs. State of Madhya Pradesh and others (AIR 1995 SC 464). It is not necessary to extract and reproduce them here.

4. From the speeches during the Constituent Assembly Debates, particularly the speeches of Pandit Takur Dass Bhargava and Seth Govind Dass, it appears that there were some laws to restrict slaughter during the British period also. Although by and large, the British, in order to feed their army and British Nationals, who were habituated of eating beef, indulged in cow slaughter on large scale, the British even protected the non-Hindus who were indulging in cow slaughter resulting in riots, as per details given in the newspaper clippings.

5. The text of the Constituent Assembly debates shows that two Muslim Members, viz. Shri Z.H. Lari and Shri Syed Mohammad Saidulla, as well as Hindu Members like Pandit Thakur Dass Bhargava and Seth Govind Dass, Prof. Shiban Lal Saxena, Dr. Raghuvira and Shri Dhulkar wanted the provision for a total ban on cow slaughter to be included in the Fundamental Rights Chapter of the Constitution. However, the Draft Committee Report piloted by Dr. Ambedkar having the approval of the then Prime Minister insisted on adopting cow protection only as one of the directive principles. The members mentioned above including Muslim Members wanted it to be in the fundamental right. They also wanted that the protection in directive principles should be for all cattle and its progeny and not for cow and calf only. But Dr. Ambekar prevailed over them, as per the Draft Committee report and what the regional draft committee passed, which is now in the form of Article 48 only.

6. The king-pin of this Debate was the Muslim members requesting the Hindu Members to be bold and keep the provision as a fundamental right rather than as a directive principle. As an anti climax, the Hindu Member, Pandit Thakur Dass Bhargava stated that he has accepted the advice of Dr. Ambedkar and would not like to put it in fundamental right, as it may not be agreeable to some of the non-Hindu people in India and, therefore, he did not press for amendment to bring it in fundamental rights.

7. We do not think it prudent to comment on the lapse of departed freedom fighters and great patriots, who sacrificed their lives for the country's Independence. We would only observe that for cow and its progeny, it was the blackest day, as the flood-gates of mass slaughter were opened by non-inclusion in the fundamental rights and further by making it as a State Subject.

8. The Parliament and Central Government were made powerless and legislatively impotent to make any law for the entire country, which remain after partition as **"Hindustan"** or India i.e. "**Bharat**". Posterity cannot forgive this serious lapse, although it would be imprudent for us to analyse the reasons now. This generation from 1950 to 21st century is only left with tears as Gandhiji pointed out earlier in thirties and forties, on the pitiable plight of our **"Gomata"**.

9. If the Commission can venture to 'call a Spade a Spade', even partition of the Motherland could not make Pandit Thakur Dass Bhargava and Seth Govind Dass to have the foresight to safeguard the cow and its progeny from Massacre, increasing in leaps and bounds from a few lakhs then to a few crores now. If they would have agreed to the suggestion of the Muslim Members referred to above and insisted on the provision being included as a fundamental right, Dr. Ambedkar might have persuaded high-ups and the catastrophe of the "holy, but helpless cow" could have been avoided.

10. The legislative scenario after adoption of the Constitution is that almost all the States, except Kerala, came out with the cattle Preservation Laws. The Assam Cattle Preservation Act, 1950 (Act 13 of 1951) was passed immediately and is still in the same form. However, the other States have come out with initial laws in 1950's and, thereafter, the amendments continued to take place repeatedly. In the laws of Gujarat, M.P., Rajasthan and Delhi the amendments have been made for protecting "Bulls and Bullocks" and progeny of cow also/ Despite trying again and again up to the nineties, Gujarat and M.P. have met their judicial Waterloo, with Chief Justice Ahmadi striking down the amendments and opening the flood-gates for slaughter of the progeny of the Cow.

11. Students of law, politics, social sciences and Social justice in this country would be aware that the initial effort of the majority of the legislatures was for prohibiting slaughter of cow, as well as its progeny. As per the sentiments and public mandate of the people, most of the Acts were passed unanimously. However, a microscopic minority, mostly led by butchers, persuaded the fundamentalists amongst non-Hindus to support them on the issue of slaughter of cows and its progeny, to change their food habits by adopting beef-eating and to do the business of leather obtained from the slaughtered animals.

12. Finding that the public sentiments were too strong against them, they started a judicial battle and, fired the first shot in the form of Md. Hanif Quresh's case which witnessed a long drawn battle. The arguments continued for months and months together before a Five-judge Bench constituted for hearing the case. The decision of the Supreme Court in the Md. Hanif Qureshi case, happened to be a landmark success for the anti-cow lobby of butchers, supported by fundamentalists, and a death-blow for the pro-cow population (90% of the total) of India.

13. In order to understand the legislative history, we have to consider in detail the deductions, conclusions and directions given by the Constitutional Bench in the Mohd. Hanif Quareshi case (AIR 1958 SC 731). This judgement was followed by other judgements Abdul Hakim and others Vs. State of Bihar (AIR 1961 SC 448), Mohd. Faruk Vs. State of Madhya Pradesh and others (1970 (1) SCR 1456), Ashutosh Lahri and others Vs. State of West Bengal (AIR 1995 SC 464) and Hashmattullah Vs. State of M.P. and others decided on 10.5.1996.

14. In order to appreciate the Md. Hanif Qureshi judgement, we must highlight a few of its important features. The Supreme Court observed - ***"There can be no gainsaying the fact that the Hindus in general hold the cow in great reverence and the idea of the slaughter of cows for food is repugnant to their notions and this sentiment has in the past even led to communal riots."***

15. Following in the same vein, in para 11 of its judgement in Mohd. Faruk's case (*AIR 1970 SC Page 90)*, the Supreme Court refused to act on the sentiments saying ***"The sentiment of section of the people may be hurt by permitting slaughter of bulls and bullocks in premises maintained by a local authority. But a prohibition imposed on the exercise of a fundamental right to carry on an occupation, trade or business will not be regarded as reasonable, if it is imposed not in the interest of the general public, but merely to respect the susceptibilities and sentiments of a section of the people whose way of life, belief or thought is not the same as that of the claimant".*** The same view was expressed by the Supreme Court in its last and latest judgement (AIR 1996 SC 2076 at page No.2080), in the case of Hashmattullah.

16. The crux of the matter is that the judicial verdict on interpretation of Constitution of India particularly Article 48 and Article 19 is as follows:

"A total ban was not permissible if, under economic conditions, keeping a useless bull or bullock be a burden on the society and therefore not in the public interest."

17. The replies to the Questionnaires of the Commission and the statements made at the Public Hearings, show that 95% of the people are in favour of a total ban on slaughter of the cow and its progeny. (A synopsis of the views in this regard, can be seen at **Annex IV (1)**. A copy of the questionnaire is at **Annex IV (2)**. A copy of a Memorandum received by the Commission at Kolkata is placed at **Annex IV (3)**. However, the above-mentioned judicial decisions, cannot allow even Parliament to put a total ban on slaughter of cow and its progeny. If the public mandate is to be respected the only way out is **"Constitutional Amendment"**.

18. What can be the hurdles in Amendment of the Constitution particularly fundamental rights? In the judgement in Keshavanand Bharati's case, the Supreme Court only declares **"Basic features of the Constitution"** to be beyond powers of Amendment under Article 368. The so-called fundamental right of butchers for doing trade or business by the slaughter of cow and its progeny cannot be called a **"basic feature"** and if the Constitution takes away such a right, it would not be against the basic structure of the Constitution.

19. On the contrary if "**Prohibition of slaughter of cow and its progeny"** is added as a Fundamental Right of the citizens of this country, it would be consistent with Articles 48 and 51A (g) of the Constitution and also, with the spirit of the Constitution.

20. The Parliament is a **"Constituent body"** also and normally its powers are unrestricted and unbridled. We, therefore, do not see any legal hurdle for a Constitutional Amendment to be brought about.

The Second dimension is "Political"

21. Although it is not in the domain of this Commission to discuss the political dimensions of the issue before it, much less decide on it, yet a passing reference would not perhaps be irrelevant.

22. The oldest important political party, the Congrees Party, had its political mentors in Mahatma Gandhi, Tilak, Gokhale, Madan Mohan Malviya, Pandit Nehru, Sardar Patel, Rafi Ahmed Kidwai, Rajrishi Purshotamdas Tandon, Thakurdas Bhargav and Seth Govind Das, Acharya Vinoba Bhave and Smt. Indira Gandhi. Except Panditiji, all in one voice have suggested total ban on slaughter of cow and its progeny. A compilation of the sayings of various national level personalities is given at **Annex IV (4)**.

23. In the debate on a Private Member's Resolution moved by Justice Guman Mal Lodha, seeking a total ban on cow slaughter, the Congress Party conveyed its support through Shri Vasant Sathe, M.P., who categorically mentioned that he was supporting the Resolution, in his capacity as the official Congress Party Spokesman and not in his personal capacity. As discussed in the **"Introduction"** of this Commission's Report, many Members belonging to the Janata Party, supported the Resolution, although subsequently, because of the threat to the Government of Shri V.P.Singh, they did a somersault and changed their views when the voting was done by slip counting. Today, the party is a house divided in itself. J.P.'s letter dated 1966 to Smt. Indira Gandhi, supports a total BAN, wholly and strongly.

24. Insofar as the Bharatiya Janata Party is concerned, it is committed to total ban on cow slaughter, right from 'day one' when its precursor the Jan Sangh was formed. It reaffirmed this viewpoint by incorporating in the speech of the then President Dr. Shankardayal Sharma on 24.5.1996 the resolve of the Government led by Shri Atal Behari Vajpayyee to take steps to **BAN** completely slaughter of cow and its progeny.

25. Shiv Sena and other parties, like those led by Shri Chauthala and Shri Ajit Singh are in full support of the ban on cow slaughter.

26. Though "Yadavs" are supposed to be descendants, belonging to the Vansaj, of Lord Krishna the greatest worshipper of **"Cow"**, it would appear that leaders like Mulayam Singh Yadav and Laloo Prasad Yadav in U.P. and Bihar, would decide what stand to take on the issue, depending on their calculations with regard to their vote banks and hence their ultimate view is quite unpredictable.

27. The Leftist Parties, CPM and CPI are against anything, which to them smells of true Nationalism or pertains to the Religlion of majority culture. Therefore, **"COW"** slaughter is maximum in Kerala and West Bengal, the only States ruled by these political parties and they would be the strongest opponents to a ban.

28. Other regional parties would decide on expediency and political Vote Bank calculations and are unpredictable.

29. All said and done, a Constitutional Amendment would succeed only if the ruling party can muster up massive support of 2/3 majority and ratification by at least half of the State Legislatures, would also be necessary. The present Government can manage to muster the necessary support, although it would require lot of effort and perspiration. The Government can take heart from the fact that, when a Bill is brought before the Parliament, the public opinion of 90% pro-cow people would also make the legislators to support it.

30. The Commission is hopeful of acceptance of its well-considered report by all rational, wise and Nationalist Legislators, irrespective of the stands taken by their respective parties.

List of Annexes to Chapter IV

1) Annex IV (1) – Synopsis of answers in reply to questionnaires and submissions made at public hearings.

2) Annex IV (2) – Compilation of sayings of important personalities of the Nation (in Hindi)

3) Annex IV (3) – Questionnaire issued by the Committee

4) Annex IV (4) – Memorandum submitted at the Public Hearing in Kolkata

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CHAPTER – V (I)

REPORT OF

COMMITTEE ON BY-PRODUCTS OF CATTLE ORGANIC MANURE AND COW URINE MEDICINES – DRAUGHT – GAS - ELECRTICITY

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Shri Sunil B. Mansinghka	**Convener**
Shri Hukum Chand Sawla	**Members**
Dr. A. K. Dorle	**Consultant**

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CHAPTER V-(I)

BY-PRODUCTS OF CATTLE ORGANIC AND MANURE AND COW URINE MEDICINES – DRAUGHT – GAS - ELECTRICITY

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EXPLANATORY NOTE OF ACTING CHAIRMAN

ON

CHAPTER V

CATTLE PRODUCTS AND THEIR ECONOMIC CONTRIBUTION

In respect of this important topic, amongst the terms of reference given to the Commission, our study and research has been divided into two parts.

The first part of the report has been prepared by the Committee on Cattle Products and By-products, whose Convenor is Shri Sunil B. Mansinghka. His report is mainly devoted to utilisation of **by-products,** such as cow dung and cow urine in organic manure and medicines, respectively.

The second part of the Chapter, is the report prepared by the Member Secretary, Smt. Chitra Gouri Lal, who has tried to point out the importance of the **contribution** of the cow and its progeny to the agrarian economy of the country. She has discussed the importance of milk and milk products, the utilisation of dung and urine for composting, bio-gas production and also the use of bullocks as draught animal power, to meet the energy requirements of the rural economy.

Since the Convener of the Committee is keen that, even though it may mean mostly repetition, since **"Cow dung and urine"** utilization alone, is what makes dry, old, infirm and so-called 'useless' cattle, into useful, economical-to-maintain and self-reliant cattle, both reports should be accepted by the Commission. I have, therefore, chosen to accept both the reports and publish them as Part I and Part II respectively of Chapter V of the Commission's Report.

The Commission would like to emphasise that this is the main core and heart of the entire exercise to save 2 crores of so-called, rather wrongly-termed, useless and uneconomic cattle from the butcher's **'killing'**, which is camouflaged as **'culling operation'**.

The Animal Welfare Board of India, through several NGOs, have undertaken 'cow dung and cow urine' revolution, since 1998, when I took over as Chairman. The Board innovated production of 'organic manure' and 'medicine' etc., by utilisation of cow dung and urine from dry cattle by various methodologies, discussed in these two reports. The Board did not invent, but only organised them, as they were already in practice by farmers and some Vaids – in indigenous Swadesh form from *"ages and sages"*. The Board gave special financial grants of Rs.1 lakh per year on adoption of the above utilisation by the NGOs. In special cases of extraordinary 'research and utilisation', the Board declared them as "Adarsh" organisations and presented them with Rs.5 lakh per year. The Deolapar experiment is the torch-light and pioneer in well-organised scientific research.

The inputs supplied to Indian Scientists at Lucknow Institute were further investigated and the research resulted in grant of an American Patent for 'Cow Urine Ark' recently.

I am, therefore, submitting both the reports, with the request that wherever there is repetition, it may be treated as 'Emphasis'. The products and by-products should be made the main subject of Research and Development by Government of India.

sd/-
(Justice Guman Mal Lodha)
Acting Chairman

CHAPTER V – PART I

BI PRODUCTS OF CATTLE – ORGANIC MANURE AND COW URINE – MEDICINES – DRAUGHT – GAS – ELECTRICITY

(By Sh. Sunil Mansinghka)

Organic Manure:

1. In our country, farming and agricultural cultivation, as per the traditional age-old system, used to be done, with cow dung amongst others serving as manure. Tracing out the history, we find that one Sir Albert Howard, who was in India in 1905, as Imperial Economic Botanist working in the Indian Agriculture Research Institute, studied the Indian system of Agriculture in order to consider ways and means of improving it. He observed in 1926, as President of the Indian Science Congress, that soil reserves should not be exploited and Indian Agriculture must be brought the know-how to transfer capital in the shape of soil fertility. According to him, the Indian Agriculture has been traditional by faithfully copying nature and use of urine and dung of the livestock was a crucial factor in organic farming in India. His research proved the importance of the organic manure. He developed the Indore Process of composting, which is even today practiced by organic farmers.

2. The traditional farming system can be safely termed as organic farming. In several developed countries, organic agriculture has come to form a substantial portion of food production system, as would be evident from the following table of growth rates in organic farming:

Australia — 10%
Switzerland — 7.8%
U.S.A. — 20 % and above

(same is true for) France, Japan and Singapore

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Some developing countries have developed organic markets for their products. For example, Egypt and Ugandan Cotton and Mexican Coffee are being organically produced and then exported.

Report of the Task Force on Organic Farming

3. It would be interesting to study the world trends in organic farming and use of organic manure and the latest figures and statistics are available in the recently published report of the Task Force on Organic Farming, set up by the Department of Agriculture. According to this Report, some of the products being produced organically by developing countries are as follows:

AFRICA

Tanzania - Honey, cotton, tea, essential oils, herbs and spices
Uganda - Cotton, sesame, cocoa, oils
Zambia - Honey
Zimbabwe - Vegetables, herbs
Algeria - Dates

MIDDLE EAST & NORTH AFRICA

Egypt - Vegetables, garlic, onions, potatoes, cotton, herbs
Morocco - Potatoes, tomatoes, lemons
Tunisia - Dates
Turkey - Dried fruit, nuts, cotton, pulses, olive oil
Belize - Cacao

CENTRAL AMERICA/ CARIBBEAN

Costa Rica - Coffee, tea, bananas, vegetables, sugar, Herbal teas
Dominican Rep. - Bananas, coffee, cocoa, coconuts, mangoes, Avocados, fruit puree, sugar
El Salvador - Coffee

4. The Task Force Report finds that four main crops have dominated the organic trade from developing countries to date and these are Coffee, cocoa, tea and cotton with spices, herbs, fruits and vegetables following. Another finding of the Report is that the total current Global trade in organic products according to one estimate, (Segger - 1997) is US $ 11 billion, over US $ 4 billion of which takes places in the USA and US $4.5 billion in Europe. It is estimated that the global value of organic trade would reach US $100 billion by the year 2006.

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5. The main products in developing and CEE countries involved in the organic trade in 1998 are, as under, as given at p.32-33 of the Report of the Task Force:

Region	**Country**	**Products**
AFRICA	Burkina Faso	Sesame
	Ethiopia	Cotton
	Gambia	Sesame
	Ghana	Papaya
	Kenya	Cotton
	Madagascar	Rum, Palm oil, coconut oil, vanilla, Essential oils, cocoa, coffee, fruit
	Mauritius	Sugar cane
	Tanzania	Honey
	Senegal	Vegetables, groundnut
	South Africa	Avocado, herbs, peaches, asparagus Nectarines, spice

CENTRAL AMERICA	Guatemala	Bananas, coffee, cashew nuts, Vegetables, fruit,
	Mexico	Coffee, bananas, avocadeo, mango, Apple, spices, coca, vegetables
	Nicaragua	Coffee, neem, cotton, beans
	Puerto Rico	Banana and banana products
SOUTH AMERICA	Argentina	Fruit & vegetables, rice, oils, textile crops, meats, dairy products.
	Bolivia	Nuts, cocoa, quinoa, grains, dried fruit
	Brazil	Coffee, tea, nuts, fruit, vegetables Sugar, cotton, palm oil, Products
	Chile	Soft fruit, kiwi fruit, grapes, Asparagus
	Colombia	Coffee, nuts
	Ecuador	Bananas
	Paraguay	Soya beans, cane sugar, molasses, Cane Alcohol
	Peru	Coffee, cotton
	Chile	Honey, Sesame, tea, rice, apples, Herbs, Soyabeans, groundnuts Spices
ASIA	India	Tea, cotton, spices
	Indonesia	Coffee, herbs, spices
	Pakistan	Grains, herbs, spices, fruits, nuts
	Papua New Guinea	Coffee, tea
	Thailand	Vegetables, fruits
	Sri Lanka	Tea, spices, cashew nuts, pine-Apple, sesame, oils, dried coconut
CEE	Czech Rep	Grains
	Hungary	Grains
	Lithuania	Grains, potatoes, vegetables
	Russia	Buckwheat, potatoes, vegetables

Source: Communication from certification programmes and consultants.

6. The salient observations of the Task Force on Organic Farming and the major recommendations of this Task Force are given at Annexure V – I (1) to this Report. The Commission agrees with all the recommendations, especially the ones involving use of dung as manure and for production of bio-gas, use of urine as pesticides and bullock power for draught purposes.

Organic Farming in the Planning process

7. In the First Five Year Plan itself, the importance of organic manure was realized. In Chapter XVIII under the caption "SOME PROBLEMS OF AGRICULTURAL

DEVELOPMENT", the importance of using organic manure was emphasized in Para-21 as under:

"Organic matter, nitrogen, phosphorus and potash are the chief constituents, which must be supplied to the soil. Nitrogen is of the first importance in crop production. The soil has a mechanism by which it absorbs nitrogen from the atmosphere and makes it available to living beings in the form of grain and fodder; men and cattle derive energy from the consumption of these and the nitrogen taken from the soil is returned to it in the form of organic manures like farmyard manure, green manure, oilcakes, composts of various kinds, bonemeal and various types of chemical fertilizers, thus completing the nitrogen cycle"

"Next in importance is phosphate. Plants absorb phosphates from the soil which are returnead to it through animal and human excreta and through decayed plants and their ashes and the bones of dead animals."

"Indian soils, while deficient in nitrogen and phosphates are generally rich in potash. Lack of potash does not, therefore, present a serious problem at present but it is one that should be watched."

8. In para-22, the Planning Commission noted that "*in tropical soils, organic manures like farmyard manure, which is a by-product in farming by bullocks, helps the soil by increasing its water holding capacity, improving soil aeration, and by changing the plant nutrients through slow decomposition into forms readily available to plants. There are other advantages in the use of organic manures namely (a) steadiness in yield over a period of time (b) benefit to the succeeding crops by their residual effects, and (c) ability to withstand unfavourable weather conditions*"

9. The Planning Commission also emphasized that "*conservation of cattle urine should be an item of extension work in all States and increasing attention should be paid to the Conservation of this useful source of manure. Cattle urine was found rich in nitrogen.*"

10. In para-29 the Commission also emphasized that "*cattle and human wastes yield fuel gas by appropriate fermentation without much loss of organic matter and of nitrogen compared to the ordinary composting process. If this process, which has successfully passed through laboratory and pilot plant stages is developed, it will check the burning of dung as fuel and thus augment materially the supplies of organic manures.*"

11. In the Fourth Five Year Plan in Para 7.51, it is stated that a *programme of setting up mechanical compost plants for the manufacture of good quality organic manure out of urban waste is envisaged in the Plan.*

Composting to enhance the quality of manure

12. According to Prof. K. Shivashankar, in the wake of the Green Revolution, our agriculture has become heavily dependent on fertilizers and chemicals. Through their use, increased pollution of soil, water and environment has resulted in health hazards. Therefore, in Organic Farming, the use of fertilizers and chemicals is banned.

13. In this context, the nutrient-needs of the crops have to be met only through organic and biological activities. There is acute shortage of farm yard manure (FYM), as 70 per cent of cow dung is being diverted to meet fuel needs. Besides, FYM is of poor quality having 0.5, 0.3 and 0.4 per cent of nitrogen, phosphorus and potash respectively. Therefore, to overcome the shortage of FYM and to enhance its quality "Composting" of available organic matter, needs to be taken up as an important programme. It takes nearly 6 to 8 months to get FYM prepared, while compost can be got ready in about four months. Whether in modern agriculture with use of fertilizers and chemicals or with organic farming, use of compost should be practiced which can stabilize yields of crops.

14. In the main, compost has the following role: Quality compost when incorporated into the soil would improve its physical characteristics and thus enhance chemical and biological activities leading to higher soil fertility.

15. The material for compost preparation can be from five organic waste materials, of which cow dung is one of the most important components.

16. The Japanese method of composting uses several layers of various products in a Compost-Vat, in the following order starting with the top-most layer, as follows:

I. soil + culture slurry
II. cow dung
III. Straw + Green biomass
IV. Cow dung slurry
V. Poultry waste + Crop residue
VI. Green leaf manures (Sesbania etc)
VII. Soil/Ash + Cowdung sprinkle
VIII. Dry leaves, grass residues
IX. Coconut shells, fibrous materials.

17. According to Dr. G. K. Veeresh, Vice Chancellor, University of Agricultural Sciences, Bangalore *"our concept of organic farming and sustainable agriculture is mainly to see that our land is made more productive and sustainable whereas the concept of organic farming or nature farming in developed countries, is to produce chemical-free food. It costs more than the ordinary. We have not yet reached this stage in our country. But our first aim is to produce more and make the land more productive. We all remember the Green Revolution in the 1960's and 1970's but that was possible only in the 30 per cent of the irrigated area. The remaining 70 per cent rain-fed agriculture is yet to respond to modern technology. Unless all efforts are made to increase the production by enhancing the productivity of this area and make it sustainable neither the country will be able to meet the food requirement of the population nor the people depending on this land will be happy".*

18. According to Shri C. Byre Gowda, Hon'ble Minister of Agriculture, Govt. of Karnataka, Bangalore, who presided over a Seminar on Organic Farming *"it is essential that we step up the production capacity of soils in a natural way. We have given a serious thought on this in the policy Statement that we have adopted in the State. We have included a*

Chapter in our Agricultural Policy to provide greater emphasis for Natural Farming, by making use of Social Forestry and by making use of waste that is obtained in the villages. For that we have already constituted a team to see that we keep our environment clean, to see that the valuable waste generated in villages is put to better use by processing and applying it to the soil. We have already launched a scheme called "Nirmal Grama Yojana" which includes making use of human and agricultural wastes that are generated in the villages. We have already given a big impetus and have started this scheme in the villages. We will continue to give more emphasis on this aspect."

Benefits of organic farming

19. During our hearings some of the papers presented and those papers reports, etc. deserves to be reproduced for ready reference, which are at Annex V – I (2).

20. The Animal Welfare Board of India gives a Special Subsidy of Rs.5 lakhs per annum to Adarsha Goshalas to develop methods for utilization of Cow Dung and Urine for Organic Manure and medicines. The National Commission on Cattle tried to make an assessment as to whether these animal welfare organizations have become financially self-reliant on account of use cow dung and urine. Shri Rampal Aggrawal, who is one of the consultants, has prepared a Note on the basis of the replies received from these animal welfare organizations in this respect. (The copy of the report of Shri Aggrawal is placed at Annex V – I (3) in Volume III. Out of 22 Goshalas to whom questionnaires were sent, only 9 chose to reply. The substance of these replies is that they are very hopeful and optimist about these Goshalas becoming financially self-reliant within the next two years. However, none of the Goshalas claim that the sale of organic manure and cow urine or their products has given them enough funds to maintain the cattle.

21. The deduction that can be made from the above assessment is that individual stray cases of utilization of cow urine and cow dung cannot create a situation when they become financially self-reliant. They would require support of the Government for getting subsidy in organic fertilizer and cow urine utilization. The Central marketing will also have to be arranged with the help of the Government. The Government will have to provide research centers, quality control centers and marketing centers. Then, and then only, can maintenance of old, dry and infirm cattle become financially viable.

22. As on today, contrary to the above, subsidy is given for the use of chemical fertilizers. Use of chemical drugs in the allopathic system of medicine is encouraged in the pharmacies and hospitals maintained by Government and no infrastructure is given for promoting the use of medicines based on cow urine therapy.

23. Dr. Balram Jakhar, former Agriculture Minister and former Speaker of the Lok Sabha, on a mature discussion of facts, had come to the conclusion that cattle plays most important role in development of agriculture in India. Copy of his article entitle 'Contribution of cattle in Agricultural Development' .is at Annex V – I (4) (in Volume III). According to Dr. Jakhar, the statistics of 1989 show that the income and production from the Dairy sector was Rs. 4548/- per hectare, which was much more than the economic returns per hectare from wheat (Rs. 2443), groundnut – wheat (Rs. 1870), wheat-cotton (Rs.1798 and maize-wheat (Rs.1788). Dr. Jakhar also found that cattle-based farming was more profitable than buffalo-based farming. According to figures, an expenditure of Rs.100 yielded Rs. 117 in cow-

based farming and Rs. 114 in buffalo-based farming. He also commended utilization of cow dung and urine for electricity production as it will improve environment also. Dr. Jakhar is very hopeful about the future of agriculture in India, if it is based on organic manure.

24. The article of Shri Purushotttam Dasji Jhun Jhun Wala of Chakuliya, Jharkhand is placed at Annex V – I (5) (in Volume III).

25. Regarding the utilization of cow urine in medicines, insecticides, etc., the Ayurved of our country antithetically mentions its various uses in medicines. Vaidya Balkrishnan Goswami in his very enlightening article on use of cow urine in health states that 15 medicines of cow urine will provide sure cure of various ailments. Shri Goswami's article is placed at Annex V – I (6) (in Volume III).

26. Shri Rameshwar Poddar on the basis of American experts and scientists' opinion has proved that there is no better medicine than cow urine for various ailments. A copy of his Article is annexed as Annex V – I (7) (in Volume III).

Ancient times:-

27. The progress of ancient Indian civilization pivoted around cow and its progeny. Cows were the symbol of prosperity and measure of wealth. A living cow was important and not a dead one for beef because everything that a living cow produced was put to some important use. Therefore, a person who possessed larger number of cow was considered wealthy. Cow was worshiped like a goddess as it was considered very auspicious and holy. A child born on inauspicious signs was put under the cow's feet so that the evil was warded off.

The Present Status

28. Cows have lost all the importance that they enjoyed in the past, in present day society we feel that cows are important only because they yield milk and we look at them only as a source of milk. Even cow's milk has lost its importance because it contains less fat than buffaloe milk. The nutrients and micronutrients other than fat that cow's milk provide have all been ignored. As a result, we are losing a great deal of nutrition that cow's milk can provide. Cows are valuable as long as they yield milk and the value of a cow depends upon the quantity of milk it provides. Even amongst cows, the breeds which yield greater quantities of milk are more valuable. As the yield of milk is reduced due to aging, the value of the cow is also diminished and ultimately when the quantity of cow's milk is reduced below the expectation of the owners the cows are disposed off.

29. The commonest way of disposing off a cow is sale to a middleman, who ultimately takes her to a slaughterhouse. Alternatively, some are left to roam on road and to perish ultimately due to consumption of polyethylene bags. Some of the cows which are taken to slaughter houses may be rescued and taken to Goshalas but such cases are few. Those who rescue the cows from being taken to slaughter houses take enormous difficulties and often put their own lives in danger. Our sentries of law are also most unkind to such persons.

30. Some Indian breeds of cattle were well known for their endurance, and milk yielding capabilities. In our over-enthusiasm to produce a breed with greater ability to produce milk we undertook a cross-breeding programme. As a result our indigenous breed lost their immunogenic characters and now we have cross-breeds which neither produce milk nor are resistant to several diseases to which they were resistant in earlier days.

31. Milk from cow has now become a rare commodity. What is sold as cow's milk in dairies is mostly diluted buffalo milk, in which the fat content is adjusted to match cow's milk. This state of affairs is, to say the least, greatly alarming.

Emerging Trends:

32. Indians farmers were enthusiastically encouraged to use chemical fertilizers and pesticides in post Independent scenario. This, no doubt, increased the production but inadvertently affected the quality of soil as well as the food it produced. The food products available in the country today are so heavily contaminated with the pesticide residue that these substances find their way even in the milk of lactating mothers and ultimately in the infants. During past decades some farmers became aware of this menace and started searching the substitutes for chemical fertilizers and pesticides. The products obtained from cows were the best choice. Concerted efforts made during the past decades resulted in some important products obtained from cow dung and cow's urine, which can be used as fertilizers and pest repellent respectively in agricultural practice. There are a variety of these products, which can be useful in different situations. These products became very popular wherever they were used and increasing number of farmers are using them day by day also because the agricultural products produced by organic farming also are becoming gradually popular.

33. Cow's urine has been used as medicinal agent since ages, some modern practitioners of Ayurvedic medicine used cow's urine in practice with astonishing results. Gradually such products produced under the license from state drug authority started becoming popular. Encouraged with this success, the Ayurvedic practitioners are also attempting medicinal formulations containing cow-dung, buttermilk and cow's ghee mixed with other herbs. These products are now gaining success, which prompted many medical researchers to analyze their chemistry and pharmacological actions. The results of such investigation are strongly indicative of these products being useful in disorders of kidney, liver, and central nervous system.

34. Recent scientific investigations are also indicative of cow's milk containing some valuable micronutrients such as carotinoids, flavones, phenolic compounds, steroids, vitamin A, and several other nutrients.

35. Thus the cow is gradually gaining importance not only for the quantity of milk that it yields but also for the quality of milk and also for agricultural and medicinal importance of its products other than milk.

Useful Cattle Products and their Formulations:

36. The cattle products are now proved to be of utmost importance in the following fields:

1) Agricultural
2) Medicinal
3) Cosmetics
4) Nutritional
5) Environment
6) Energy resources

36.1 Products of Agricultural Importance:

Almost everything that a cow possesses and produces is of importance from Agricultural point of view. Cows dung is a most important source of bio-fertilizer but at the same time cows urine, cows horn and a dead body of a cow can be used for preparing effective bio-fertilizer some of these products are described below.

i. Vermicompost:

Vermicompost is prepared by putting the mixture of cow dung and vegetable waster in contact with some specified species of earth worms for a period of 15 to 20 days in a pit in a controlled humidity conditions. The product is sieved at the conclusion of the period and is dispensed in suitable containers for using as manure.

Some controversy exists regarding the exact species of earthworm that should be used for this purpose. If some systematic research is conducted in this regard the outcome will be very fruitful.

There is also a need for determining the parameters on which the Quality of this product may be determined. Research in this direction is advisable.

This product is very popular amongst farmers in various states and has yielded very encouraging results. Observation of some researchers in this field are recorded in Annexure –I-(Indore, Nagpur, Bhopal etc.)

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It is observed that use of this manure results in increase in yield and also yields the agricultural produce of greatly superior Quality and taste.

A commercial project for production of Vermicompost from cow dung and vegetable waste is presently in existence at the following places:

a. Excel (uses microbial culture)
b. Go-Vigyan Anusandhan Kendra, Deolapar.
c. Municipal Corporation of Bangalore.
d. Murarka Foundation, Jaipur.

ii) Nadep-compost:

This manure from cow dung vegetable waster is known after the name of its inventor Late Shri Pandharipande. The process consists of keeping cow dung and vegetable waster in a pit for 6 months and sieving and packing the product at the end of the period. The product was immensely popular in early days and is used at some placed even today. It is now gradually being replaced by the vermicompost.

Interestingly, Late Shri Pandharipande has the credit of inventing many other things like tooth powder, cleaning powder, heat-resistant bricks and light-resistant paint from cow products.

iii) Fertilizers from Cow's Horn:

This is an innovative product prepared with the help of horn of a dead cow. A mixture of cow dung, cow ghee and honey is filled in the hollow of a horn of the cow's sealed with cow dung and burried in a pit. The pit is filled with cow dung and allowed to stand for 6 month after which the horns are taken out and their contents also. The content of single horn when sprayed by mixing with waste can help the soil in one acre of land to enhance considerably its fertility.

The product presumably consists of anaerobic micro organisms which when put in soil help it in fixation of nitrogen and phosphorus.

The product is very popular and effective and is available in the market in the form of Tablets.

iv) Insect Repellent from Cow's Urine:

Cows inherently repell insects. The seat of the cow is a powerful repellant of house fly and therefore flies seldom are found on cow's skin. Cow's urine also is a strong repellant for insects which normally inhabit the common crops. The repellant activity of cow's urine is enhanced by mixing some plant extracts with it. Neem (Azadirachta indica) Sitaphal (Annonaceae) etc. are some common plants which enhance the insect repellent capability of cow's urine. These activities are utilized by agricultural scientists by preparing a concentrates of cow's urine with extracts of these plants. These insect repellants are harmless for humans. They are successfully replacing the chemical pesticides as they offer an added advantage of enhancing natural immune systems of plants and also enhance the growth of a plant by increasing the synthesis of some plant growth promoting hormones in plants. Thus the products acts as a "Tonic" for plants.

The product is available commercially and is gaining popularity very fast.

The insects against which the product is experimentally seen to be effective are indicated below :

i. Plant pathogenic fungi (collatotrichum falcate)
ii. Human pathogenic fungi (sclerotium rolfs)
iii. Human pathogenic bacteria

Although this product is very effective and popular amongst farmers its use can be much more effective if the systematic research aiming at optimizing technology of its production and fixation of appropriate standards for the Quality of its raw materials and finished products is conducted.

36.2 Products of Medicinal Importance

The medicinal importance of products obtained from cow was recognized even in ancient days. The ancient Ayurvedic literature liberally describe several such formulations. Five products viz. Cow's Milk, Urine, Dung, Ghee, and Curd or butter milk possess healing properties against many disorders and are used for the medicinal purpose singly or in combination with some other herb. Collectively these five products are called, "PANCHAGAVYA" and the therapy making its use as panchgavya therapy. Ayurvedic physicians have been using these remedies for ages but in recent years results of some scientific investigations in India and abroad have prompted physicians to view them with renewed hope and enthusiasm. They seem to be potent anticancer and anti HIV agents and some of their formulations made with Panchagavya are described here.

a. Ashtamangal Ghrita – A Memory Enhancer

This is a formulation containing Cow's Ghee, Brahmi (calamus bach), saindhave (chloride of sodium), sayssurea (kuth), mustard, anatmul (Indian sarsaparilla), long pepper and a few more herbs. Administration of the formulation in children enhances their memory power. The formulation is also useful as a therapy for senile dementia. With financial assistance from Council of Scientific and Industrial Research, the formulation has been rendered stable by protecting the ghee against oxidation during storage with a polymer coat by a specially designed technique. The formulation is being patented.

b. Jatyadi Ghee:

Cow's Ghee has been demonstrated to enhance wound-healing process, presumably by promoting cell-division. A combination of ghee and an antibiotic is more advantageous. Jatyadi Ghrit contains cow's ghee and several herbs know to promote healing of wounds. An US patent has been granted for a product using cow's ghee, which facilitates drug action.

c. Ghee as a Suppository Base:

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Cow's ghee, in combination with some other bases, has been seen to serve as an excellent material for preparation of suppositories.

d. Gomutra Ark:

A volatile fraction of cow's urine prepared by distillation process is available as 'ark', which is seen to be effective against renal disorders.

e. Immunological applications

Cow milk as a means to transfer immunogens or antigens is being used by rendering milch cows hyper-immune by administration of an appropriate agent. In this hyper-immune state, the antigens find their way into the milk of the cow, which when administered to humans, especially children, render them immune to the particular disease. Cow's ghee as well as urine has been seen to stimulate immune processes in experimental animals. This property has important potential in treatment of diseases like AIDS and Cancer.

f. Takrarista:

This is a formulation prepared by fermentation of buttermilk along with some herbs. the formulation is effective principally against micro-organisms which cause food poisoning.

g Ghan Vati:

This is a residue remaining after removal of volatile matter and water from cow's urine. Administered in the form of an ointment and tablet the formulation is effective against several skin infections.

h. Shwitra Nashak Vati and Shwitra Nashak Lep:

Shwitra Nashak Vati is a pill prepared from non-volatile solids of cow's urine and some herbs. This is for oral administration. Shwitra Nashak Lep is a similar formulation for external application. Both administered simultaneously form an effective treatment against leucoderma.

i Kamdhenu Marham:

This is an ointment containing cow's urine and ark made from cow dung along with some herbs. This has been acclaimed as a very effective treatment against psoriasis. Some Ayurvedic physicians also export this formulation.

36.3 Cosmetic preparations:

A fractional distillate of cow urine exhibits antibacterial activities against several micro-organisms, including those which cause 'dandruff'. Cow's dung, when dried has good cleansing properties. The half-burnt cake of cow dung possesses good absorbent, as well as adsorbent properties. Cow's ghee exhibits emollient action. These activities render these materials excellent bases in some cosmetic formulations. It has also prompted cosmetic scientists to conduct research with an object of using these raw materials for effective cosmetic formulations. Some such formulations are indicated below:

- Skin care cake: This is a product, which looks like a soap. This is prepared with dried and sterilized cow dung, multani earth, til oil, cow's ghee, and several aromatic herbs. The cake is very popular amongst young ladies and beauticians. This is available in several variations of the formula described.
- Anti-dandruff shampoo: A shampoo containing cow's urine and other ingredients is an effective remedy against dandruff and has recently been made available to consumers.
- Tooth powder / tooth paste: Tooth powder made by using half-burnt cow dung cake and other aromatic components is effective tooth-cleansing formulation, some times used in combination with neem.
- Skin care cream: A skin care cream containing cream or ghee from cow's milk is said to render the skin fair and smooth.

36.4 Nutritional Aspects:

Milk of any animal is considered to be a whole food as it contains almost all the ingredients essential for body growth. Amongst such element the emphasis is given enormously to its fact content so far as India is concerned. Cow's milk contains less fat (4-4.5%) than the milk of buffalo (8-8.5%) and is therefore rated lower. Amongst other components of milk are proteins, lactose & vitamins. Ancient literature states that cow's milk also contains gold. This has not been confirmed & perhaps is a wrong notion. The yellow colour of cow's milk is perhaps because of carotenes which are present there in contrast to Buffalo-milk, the Cows milk contain substances like carotenes, Vitamin A, Vitamins of B complex group and Vitamin C. It also contains substances like flavones sterols & phenols. The lactic acid bacilli present in milk are important. Although not much work has been carried out on milk of indigenous breed, it is known that the fatty acids & amino acids present is the fact of cow milk are different than those in buffalo milk. These components render cow milk very nutritious and growth promoting for infants & children. Ayurvedic practitioners believe that cow's milk and ghee are memory enhancer. This fact finds confirmation from the researches conducted on a formulation known as 'Ashtamgal Ghrita'. This preparation has been seen to enhance memory in school children and is being investigated for possible treatment for senile dementia and mentally handicapped children.

There is absolutely no doubt that cow's milk is most nutritive. The nutritive value of cow's milk is also enhanced when we take into consideration, carotenes, flavones & phenolic comps and some steroids, which are exclusive compounds of cow milk. All these chemical agents delay the processes involved in aging. Capsules containing such synthetic compounds are used in medical practice for preventing aging symptoms. A Seminar partly sponsored by the N.C.C., held on 7-72002 at Delhi organized by the "Love4Cow Trust", confirmed that cow milk is 'Amrit" and superior to all.

A formulation containing cow's Ghee, honey, vitamins & a non-fat fraction of cows milk is being attempted as a micronutrient. Under these circumstances it has to be accepted that cow milk is superior to others as nutrient. It is obvious that evaluating cows milk as inferior to buffalo milk on the basis of its fat content is totally wrong. It is cows milk that should be rated superior because it contains more nutrient & micronutrient substance.

36.5 Environmental Aspects:

The commonest pollutants today are pesticide residues and poisonous elements coming from automobile fuels. The problems arising out of pesticide residues are enormous. Every food article today is contaminated with considerable quantities of residual pesticides. These pesticides, along with the insecticides, sprayed for insect control, reach in blood of humans at high levels. It has been demonstrated that they all are excreted in human milk and even reach the body of the infant, who is bread fed. The search for substitutes for the petroleum fuel & synthetic chemical pesticides & insecticides is being made hectically. The products from cattle can be best substitute for pesticides & insecticides. The pesticides, pest-repellants made from cows urine & insect repellant from the urine & dung pose no problem. Cows, therefore, can help us to a great extent in resolving problems of pollution due to pesticide & insecticides. The agricultural soil in the country is also gradually loosing its productivity because of the irrational/

uncontrolled use of chemical fertilizers. This has destroyed the natural microbial flora in soil & also useful for insects like earthworms & to some extent rats. This has caused a total loss of ecological balance & unless a solution is found in time, it may lead to a irreparable loss of soil fertility. The situation can be remedied effectively by using organic fertilizers & insect repellants in place of chemical fertilizers and insecticides. Many farmers have realized this & are switching over to organic farming.

36.6 Cattle as a source of energy:

Traditionally, the bulls are being used as source of energy for carrying out several mechanical operations in agricultural practices & food industry. Although tractors are no available around 75% of the total land is being activated with the help of instruments, which are operated by bulls. It is necessary to cultivate a breed, which is efficient as draught animal. Ongole breed of Andhra Pradesh and Maharashtra was supposed to be one of the best in this respect, but is under the threat of being extinct because of the cross-breeding policy. This aspect needs immediate attention of the authorities.

Electrical current:
A small amount of electricity can be generated by placing two electrodes in cow urine. This current is sufficient to operate an electrical wall clock for about a month. Duration can be increased by putting some fresh cow dung in urine. Efforts to use this sample of electricity are yielding favourable results. It is possible that further intensive research efforts may make it possible to use this source of energy for illumination of a small space in villages.

Some efforts have recently been made to use biogas from cow dung as a tool for running a generator of electricity. The results are very encouraging, as it enables us to use biogas as a fuel for general use or generating electricity. This would be extremely useful in places where electricity is a problem.

A generator operated by bulls is also a novel concept, which merits attention. The efforts can be successful provided that some means of continuous rotation of the shaft can be ensured by using multiple pairs of bulls or some means of storage of the electricity, which could be available even when the bull stops moving can be found out.

37. Economical aspects:

37.1 The cows are slaughtered in India because the owner of the cow finds in difficult to maintain her after she stops yielding milk. This is because it is generally believed that milk is the only commodity obtained from cows, which is useful and can be sold in exchange of cash. This notion is totally wrong. Cow yields products other than milk, which are valuable and saleable. Thus the dung as well as the urine of cow can be put to use by owner himself or sold to persons or organizations to process them. The Commission noticed that there are a good number of organizations (goshalas) which keep the cows rescued while being carried to slaughter houses. Very few of such cows are milk yielding. Such organizations use the urine and dung produced by these cows to prepare Vermi-compost or any other form of bio manure and urine for preparing pest repellents. The money collected by the sale of such products is normally sufficient to allow maintenance of the cows. In some cases the urine and dung is used to prepare the medicinal formulations also. The organizations, which are engaged in such activities, are making profits also.

37.2 Commission examined the balance sheets of some such organizatiuons. The expenditure and income of one such organization is displayed here. In order to make the accounts simple the amounts are calculated as averaged per cow per day.

It is obvious that expenditure per cow is Rs. 15-25 cow/day.
While the income from sale is Rs. 25-35 cow/day.

37.3 These averages make it clear that the belief that cow's which do not yield milk are unprofitable and burden for the owner is totally false. In fact it can be seen that products of cow are sufficient to maintain them even without milk. The milk in such cases is only a by – products.

37.4 It is obvious that all cow owners do not engage in productions of fertilizers or insect repellants. It can also be understood that such activity may not be feasible for owners of a single or a few cows. In such cases the cow's urine and dung may be supplied to such organizations, which utilize these materials for producing finished products required for agricultural or medicinal purpose. Commission has noticed that some organizations which are engaged in production of agricultural and medicinal products from cow dung and urine do purchase raw materials from nearby cow owner at a price lwhich is sufficient to maintain a cow.

37.5 These activities may be facilitated if the sale as well as procurement of cow durng, and cow's urine is made in some organized manner, may be in the same manner as is done in case of milk. Encouragement to organic farming from the government will facilitate such activity.

38. Research : present status and need : -

38.1 Progress of any Nation today is based on the progress it makes in the field of science. While India has made commendable progress in may important fields the scientific investigations in the fields, related to cattle are unfortunately totally ignored.

38.2 The country has institutes named as National Dairy Research Institute, Veterinary research institutes, institutes of teaching and various other institutes. These institutes are expected to conduct research on problems, which are of national importance. Despite the rupees from the country's exchequer, the basic problem is that we do not know the difference between chemical constituents of milk from different breeds of cows and that from buffaloes. We do not know what difference exists between the physiology and biochemistry of various Indian breeds of cows and buffaloes. Existence of hump on the back that develops below the neck are special features of Indian breeds and most astonishingly we are still in dark about the precise physiological and biochemical functions of these anatomical parts. We do not know what exactly is the effect of the cross-breeding programs, which we have executed during the past decades nor do we have any idea with regard to how Indian breeds could be upgraded with cross breeding with other Indian breeds. There are many such aspects, which ought to have been the subjects of interest of national laboratories or Indian researchers but perhaps such aspects were not considered important from the point of view of national priorities.

38.3 It is now time that some government agencies fix the research priorities of National interest.

38.4 Organizations related to cattle are presently in the process of revolution. The uses of cattle products in agricultural and medicinal practices are being recognized and efforts are being made to base such applications on sound scientific basis. The organizations concerned are trying to conduct necessary research in various fields related to cattle and cattle products to the extent that it is possible for them. However it must be realised that research today is much more complicated than earlier. Unless sophisticated instruments and statistical analytical procedures are employed the data is not considered reliable. Most of the problems have multidisciplinary dimensions and if becomes necessary that the problem is considered by scientists of different scientific disciplines. It is therefore absolutely necessary that research is conducted by a team of researchers. Such variety of competence is not easily available to non- government organizations. The Commission therefore feels that the authorities in government research institutes should jointly set up a research programme based on national priorities, which may be reviewed from time to time. Some aspects, which, in the opinion of the Commission, deserve immediate attention, are mentioned here.

Analysis of cattle products : -

38.5 Commission is surprised that no systematic analysis of secretions and excretions of different indigenous breeds and their comparison with other animals like buffaloes has not been carried out at any laboratory in the country. As a result we do not know the precise difference between the contents of milk of different breeds of indigenous breeds & milk of buffalo. Because of such ignorance, the cow's milk is valued only on the basis of its fat content. As a result, the various micronutrients present in cow's milk have been totally ignored. Cow urine is used for medicinal as well as agricultural purpose. But we do not know which component in cow's urine is useful in this respect. Cow's milk & butter have proven memory-enhancing action, but to which component of milk & butter can this activity be related is not known. The variation of components of milk & urine of cow's different physiological stages & in different seasons is also a matter of interest because if we know these things it may be possible for us to utilize cow's urine for optimal benefit. It is therefore absolutely necessary that a systematic research program is undertaken with the aim to find out.

a. Composition of milk, urine & dung of different indigenous breeds & buffaloes.

b. Variation in these components in different seasons and different physiological conditions such as age, menstrual period and pregnancy.

c. The detailed analysis of micro-nutrients n urine & milk with special emphasis on biologically and medicinally active ingredients and substances such as steroids, phenols, flavonoids, fatty acids, prostaglandin precursors, vitamins and enzymes & hormones may be given special attention.

d. The difference between the composition (especially in terms of above compounds) of secretion & excretion of pure indigenous breed & exotic and cross breeds should also be analyzed or determined.

Microbial analysis :-

38.6 The cow's urine as well as milk contains micro-organisms, which are useful. For eg. Lactic acid bacteria are used as digestive. These organisms also produce substances, which has wide antibiotic activity. We have reasons to believe that some of these organisms may produce substances, which can either kill or inhibit the growth of microbes involved in food poisoning. Urine of cow contains microorganisms, which probably help the growth of plants. Some such organisms have been isolated by some researches in the field. Systematic microbiological examination of different indigenous, exotic & cross breed may yield fruitful results. Such work should be undertaken in National Laboratories if it is not carried out so far. Aim should be to examine the entire microbial flora in milk, urine & dung of different breeds of cows to isolate different organisms and study their usefulness.

38.7 Fresh cow's urine exhibits anti-microbial activity. The activity declines over storage, presumably because of the oxidation of compounds like phenols. Some fractions of urine exhibit greater activity and residue remaining after evaporation shows maximum anti-microbial activity. It is possible that such activity is simply because of high salt content of the residue but the possibility of existence of other components with good anti-microbial activity can also not be ignored, especially because this fraction is considerably useful against many skin diseases including eczema. The research aiming at utilization of anti-microbial activity of cow's urine in clinical practice may yield fruitful results. Competent persons must carry out such research in a systematic manner.

Technological Research : -

38.8 Some very useful formulations are presently being produced by different organizations from the urine & dung of cow. These formulations are important from agricultural point of view. For eg. Vermicompost from cow dung is not only a substitute for chemical fertilizers but is even superior. Similarly, the insect-repellant is being produced by extracting herbs like neem with cow's urine. The methodology that is used in production of these substances is crude and not necessarily based on scientific considerations. Our benefit from these products could be much more if production of these materials is standardized on scientific & technological parameters. Special attention must be given to the aspects like nature of active ingredients & their stability under different conditions of temperature and the process conditions, which would suit and yield products of optimum efficiency.

38.9 While producing these materials some important aspects must be addressed. For eg. from which cows should urine & dung be collected & which cows must be excluded, which should be acceptable properties of these raw materials be analyzed before acceptance or rejecting them, what standards be applied for other raw materials for their acceptance and what other precautions be taken during manufacturing operations. These are some of the questions, which are important for ensuring quality of the product. At the same time, it is also absolutely necessary to examine whether the final product prepared is of required quality. These things can be done only when sharp quality control parameters are established for raw materials & finished products of this nature. Intensive research in this field is necessary. Such research efforts are possible only when a team of scientists consisting of agriculturalists, veterinary scientists, biologists, biochemists, chemists, microbiologists & technologists of appropriate branches make a co-operative effort. This may be done in any of the existing Laboratories

Medical research: -

38.10 Cattle products, that is cow urine, dung, milk, butter-milk & ghee which are all collectively known as Panchgavya were extensively used in past years as medicinal Agents. Today such uses are being revived. As a result they are several organizations, which prepare medicinal formulations of various types from these cattle products. Although the efficacy of these products is yet to be established by systematic research, the fact that both physicians & patients find symptomatic relief by use of these formulations indicate their usefulness. At many places production of these formulations is made under the licence issued by State drug authorities.

38.11 While considering production of these formulations, importance of some basic parameters becomes obvious. For eg. It is necessary to know as to urine or dung or milk from which animals should be considered acceptable, which animals be excluded, secretions & excretions of animals of which age or breed should be used. Secretions / excretions in which physiological stage (menstrual cycle, pregnancy etc.) gives urine, milk or dung which is suited for formulations of drugs, are some questions which must be resolved in order to derive maximum benefit from these drug formulations.

38.12 It is also necessary to fix quality control standards for the finished products. The extensive research is these areas is absolutely necessary.

38.13 Verification of claims: Ayurvedic formulations derived from cattle products are claimed to be useful in multiple disorders. In which disorders are they really useful is a subject for research. Such research must be conducted by employing the modern research methodology & statistical analysis. Such researches must be conducted under the supervision of competent medical specialists in a hospital where research facilities are available. Such hospitals must be identified and, clinical research in such hospitals should be encouraged & supported.

Biochemical research:

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38.13 There are reasons to believe that differences exist in biochemical and metabolic pathways in different breeds of cattle and other milch animals because the components in milk, urine & dung of these animals vary. This has however not been properly understood because the biochemists do not seem to have given attention to these aspects.

38.14 An Indian scientist at Kunoor has patented a formulation of the saliva obtained from a cow during regurgitation. He claims that his formulation is useful against many disorders of animals. These claims seem justified because regurgitation is a process, which involves several enzymes. It may also involve biochemical processes in Indian breeds of cows. It would help us a lot and enable us to obtain maximum benefit from cows.

Immunological research:-

38.15 Indian breeds of cows are resistant to several infectious diseases. This property seems to be gradually declining because of the uncontrolled cross breeding. The immunological characters of pure indigenous breeds were used for medical treatment in ancient times. There is a practice of administering the excreta of a just-born calf to infants

& children for the purpose of achieving immunity against certain diseases. A patient suffering from tuberculosis in ancient days was advised to live amongst cattle for a period of a month or two. These practices are indicative of realization of special characters of immunity amongst Indian breeds. A methodical research in this area by immunologists can be beneficial.

Cow milk as carriers of immunogens :-

38.16 Some recent reports have come to notice of the Commission where the milk obtained from cows, which are brought to the hyper-immunity state, is used as a carrier for immunogens against many infective diseases. Suitability of this mode of immunization needs confirmation. It is recommended that research in this field be carried out at suitable institutions.

Samadhi Khad : -

38.17 "Samadhi Khad" is a term used for manure obtained from a pit where a dead body of a cow is buried. This manure is considered very effective and is valued very high.

Bio-inoculants from cattle : -

38.18 Microbial flora of soil plays an important role in plant and soil health. The microorganisms present in the rhizosphere's environment around the roots influence the plant growth, crop yield and plant diseases. Isolation of such beneficial microorganisms, bio-inoculants from panchagavya and their establishment in the rhizosphere may improve the sustainability of agriculture. It is a well-known fact that the indiscriminate use of chemical fertilizers and pesticides have been proved harmful for soil environment and human health. Engineering the rhizosphere using beneficial bio-inoculants may lead to improved soil quality and plant nutrition. Scientists in NBRI Lucknow have isolated strains from some cattle products of such bio-inoculants and technologies have also been developed to commercialize them.

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RECOMMENDATIONS:

1. Intensive efforts must be initiated immediately to identify and preserve all the indigenous breeds of cows and bulls.
2. Policy of cross breeding with exotic breeds must be reviewed immediately. Efforts must be made to upgrade indigenous breeds with suitable other indigenous breeds. Such cross breeding must be made with well-defined aims and objectives and must be based on scientific and genetic characters. Cross breeding policy must be reviewed periodically on the basis of the results of previous experiments.

   A central / regional cattle research institute be established to serve as a guide for this purpose.
3. Research programmes, as identified below, should be undertaken, encouraged and supported in national institutions, universities and non-government institutions:-
   1) Genetic and other studies necessary for characterization of indigenous cattle breeds and for using as parameters for selection of breed for indigenous intra-breed cross breeding with an aim to upgrade them.

2) Identification of anatomical characters (such as hump), which are characteristics of indigenous breeds and to study their physiological significance.

3) Comparative chemical, microbiological and immunological analysis of milk and urine and dung of various indigenous cattle breeds and buffaloes with special reference to their agricultural, medicinal and nutritional significance.

4) Chemical and microbiological analysis of fertilizers and pest repellants, produced from cattle urine and dung with a view to serve as evaluation parameters of these products.

5) Technological studies for optimization of production operations involved in agricultural products from cattle.

6) Determination of quality control parameters for raw materials and finished products from cattle. Attention may also be given to various stages of development and physiological condition of health & diseases when such raw materials may be accepted or rejected.

7) Verification of clinical and medicinal claims made in ancient literature related to health sciences with regard to medicinal properties of products obtained from various breeds of cattle. Pharmacological, microbiological, immunological, and toxicological studies of these remedies.

8) Development of best-suited technological operations which are necessary for optimal efficacy of the medicinal products obtained from cattle urine, dung, milk, buttermilk and Ghee and any other such product.

9) Determination of quality control parameters for raw materials including age, health and physiological status of cow used for production of medicinal products from milk, Ghee, butter-milk, urine and dung (and any other secretion) of cows.

10) Research on bio-fertilizers and bio-pest repellants to determine their soil and crop specificity. Composition and efficacy of fertilizer obtained from dead cow's horn merits special attention.

11) Influence of cow's urine on rate of germination of seeds and plant growth. Presence of plant and human immuno-stimulant substances in cow's urine.

12) Development and evaluation of technology for production of mechanical, thermal and electrical energy from cattle.

13) Efficacy and utility of radiation-preventing ability of cow dung.

14) Development of eco-friendly methods of disposal or replacement by other suitable substitutes of polythene bags and other materials.

15) Utilization of cow's milk as immunogen transmission vehicles through hyper-immune cow.

16) Use of lactic acid bacteria as nutrient and for medicinal purpose especially for production of antibiotic substances.

17) Suitability of species of earthworm for production of Vermicompost and their ecological effect.

18) Plant Antibiotic substances in cow's urine.

19) A 'cow urine concoction' is seen to be useful in medical practice in many ways in the country. Usefulness of such formulation from indigenous species may be investigated.

20) Technology and quality control aspects of cosmetic products from products of cattle.

4. A broad-based review committee be constituted at national level which should review the progress in the area of research and utilization of cattle products. The committee should guide the various research institutions, other organizations and departments involved for means of optimal utilization of cattle products.
5. Possibility of utilizing vegetable and kitchen waste in all the municipal areas in the country for production of vermicompost should be seriously examined and implemented wherever feasible. Such efforts are in progress in the city of Mumbai and advantage could be derived from that experience.
6. Indiscriminate throwing of plastic and polyethylene bags must be banned. A suitable systematic plan of disposal of plastic & polyethylene bags must be evolved and implemented. A public education program in this respect must be initiated.
7. Education programme for farmers concerning benefits of organic farming by using bio-fertilizers and bio - pest repellants must be started. Agricultural universities and departments and non-government organization may be involved in such programmes.
8. The useful medicinal products are available from cattle products. The drug control authorities in the country should, after thorough examination, include such products in Indian pharmacopia so that their production and quality may be suitably standardized.
9. Use of oestrogens and similar drugs increasing the yield of milk of cows should be banned for reasons of health of cows.

Utilization of cattle and cattle products (dung cake and biogas) as source of thermal, mechanical and electrical energy should be encouraged and subsidized.

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CHAPTER – V(II)

REPORT ON

ECONOMIC CONTRIBUTION OF CATTLE, CATTLE PRODUCTS, BY-PRODUCTS, CATTLE ENERGY UTILISATION AND RESEARCH

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By – Smt. Chitra Gouri Lal
Member Secretary, NCC

CHAPTER V-(II)

ECONOMIC CONTRIBUTION OF CATTLE, CATTLE PRODUCTS, BY-PRODUCTS, CATTLE ENERGY UTILISATION AND RESEARCH

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CHAPTER V – PART II

REPORT ON CONTRIBUTION OF THE COW TO THE ECONOMY, UTILISATION OF CATTLE PRODUCTS AND BY-PRODUCTS, CATTLE ENERGY UTILISATION / RESEARCH

(By Member Secretary)

1. Out of the four specific terms of reference of the National Commission on Cattle, the item entrusted, for a detailed examination, to this Committee is extracted below for ready reference:

"To study the contribution of cattle towards the Indian economy and to suggest ways and means of organizing scientific research for maximum utilization of cattle products and draught animal power in the field of nutrition and health, agriculture and energy, and to submit a comprehensive scheme in this regard to the Central Government".

2. Brief Background

2.1 Importance of the cow in the Indian Economy over the centuries

2.1.1 Bos Indicus or Zebu cattle breeds which are the humped cattle, found in the Indian sub-continent are thought to be the world's oldest domesticated cattle. There are differing views about the exact origin of the Indian cattle breeds and as to whether or not they were brought into India by the Aryans or existed in the country even prior to that. According to some historians, the abundant remains of humped bulls in every stratum of the archaeological site at Mohenjodaro, indicate that " the Indus Valley must have been specially rich in this fine breed of cattle ...." (Ref. Dasgupta Satish Chandra, Cow in India, Vol.I, p.115, 1945).

2.1.2. Whatever the origin, the fact remains that the cow has been a cornerstone of Indian agriculture for centuries and has served as source of nutrition for farmer's families through milk and milk products, as well as providing draught animal power for both agricultural operations such as ploughing and tilling the land, as well as for transportation of goods. Nearly all basic necessities of life were woven around the cow, with contributions in all aspects of life, including farming and manure, food and nourishment, transport, fuel (burning of dried cow dung cakes and medicinal usage of cow dung and cow urine.

2.1.3. Coming to the position in the first half of the twentieth century, the economic contribution from cattle in India was studied by several authors, as documented by Shri Satish Chandra Dasgupta in his book entitled "The Cow in India" (at p.372-382). According to Shri Dasgupta, the wealth produced by cattle was quantified in 1933 by Sir Arthur Oliver (with Shri M. Vaidyanathan) as around Rs.1900 crores with the following break-up:

S.No.	Item		Value in Crores of rupees
1.	Cattle labour for cultivation		612
2.	Cattle labour for transport		161
3.	Milk		810
4.	Manure		270
5.	Other products –		
	Hide	22.5 crores	55.5
	Wool	3.0 crores	
	Meat	20.0 crores	
	Bones etc.	10.0 crores	
	Total	55.5. crores	
6.	Living animal export trade		0.36
	TOTAL		1,908.86

2.1.4. Subsequently, in 1937, Dr. Wright (again with Shri M. Vaidyanathan) came up with a revised estimate of Rs. 1,000 crores, with some changes in costing e.g. Dr. Wright did not take into account the contribution of cattle labour in transportation.

2.1.5. Since, at that point of time, the total value of agricultural products (from crop husbandry) stood at Rs.2000 crores per annum, Sir Oliver's estimate put the contribution of animal husbandry to the economy at par with that of agriculture. Even, Dr. Wright's estimate of Rs. 1000 crores, which by no means represented a small contribution, especially considering that, in those days, industrialisation was minimal and agriculture was the predominant mainstay of the economy.

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3. Present-day context

3.1 The significance of cattle and their contribution to the Indian economy has, if anything, further increased in the present-day context, when the impact of rapid industrialisation and mechanisation is taking its toll on the ecological bio-sphere.

3.2 According to the Government of India's Economic Survey 2001-2002, the total contribution of Agriculture and allied sectors, like Animal Husbandry, to the GDP amounted to Rs. 3,05,643 crores (at 1993-94 prices), while the total GDP from all sectors of the economy was Rs. 12,58,800 crores (at 1993-94 prices). The contribution of the livestock sector alone was 5.9 % of the total GDP. As a percentage of the agricultural GDP, the livestock sector (minus fisheries) contributes about 24% as against 22.6% in 1998-99.

3.3 While the proportionate contribution of livestock sector (4.8 – 6.5%) to total Gross Domestic Product Growth (GDP) has remained constant, its contribution to agricultural GDP has gone up over the years. This however does not include animal power, which is valued at between Rs.4,000/- and Rs.9,500/- crores in terms of fuel equivalent. According to the Economic Survey 2001-2002, the contribution of milk and milk products alone, (Rs.1,01,990 crores) was higher than wheat (Rs.47,091 crores) and sugarcane (Rs.27,647 crores).

3.4 Livestock production is an important source of income for the rural poor in developing countries, like India, where 70% of the livestock is in the hands of small and marginal farmers and landless labourers, who own less than 30% of the land area. Production Systems are based on low cost agro-byproducts as nutritional inputs, using traditional technologies for production. A sizeable percentage of livestock owners are below the poverty line.

3.5 Rearing of cattle is an enterprise, which enables poor and landless farmers to earn income using common-property resources and land that has no other sustainable agricultural use. The cattle and other livestock are fed on crop residues and agricultural farm produce and by-products that would otherwise be wasted. Cattle products are an important source of nutrients, and the addition of milk to the diet provides protein, calcium, vitamins, and other nutrients that would otherwise be lacking. Besides providing food, cattle form the most important form of non-human power available to poor farmers.

3.6 Animal Husbandry sector provides large self-employment to millions of households in rural areas. Employment in Animal Husbandry sector was 9.8 million in Principal status (out of which 7.90 million were in rural areas) and 8.6 million in subsidiary status. This does not include persons employed in sale, re-processing and transport of animal products at secondary market level. Apart from these, large manpower is involved in livestock related activities viz., manufacture of animal food products and beverages, manufacture of woolens, tanning and dressing of leather, farming of animals, production, processing and preserving meat and meat products, manufacture of dairy products, retail and wholesale trade of livestock products, etc.

3.7 The rural women have a special place in the animal husbandry sector, in which they play a very prominent pro-active role. Women constitute 71% of the labour force in livestock farming. In dairying alone, 75 million women are engaged as against 15 million men. Generally, it is seen that decisions in livestock production lie with men while those of feeding and milk production, breeding of animal and fodder cultivation lie with women. Although, women are involved in most livestock operations, their knowledge level is low.

3.8 Cattle rearing, as it exists today in India at the subsistence farming level, is quite financially unviable. As long as the cow is in milk, the farmer is willing to maintain her, but once the becomes permanently dry, the scenario changes. So is the case with bullocks which become aged and infirm. Male cow-calves are often sold at very young ages, with the farmer-owner knowing full well that the calve he is selling will definitely land under the butcher's knife. The answer lies in the harnessing of all cattle by-products such as cattle dung and urine for various purposes. It is also possible to increase the profitability of the ventures by increasing the unit size and using current technologies, thereby generating wealth and employment.

4. Economics of livestock enterprises

4.1 Livestock enterprises with crossbred cattle and high yielding buffaloes have shown to be a remunerative business, mainly on account of the sale of milk produced at these farms. Studies have shown that dairy enterprises, as against crop-raising in rural areas, gave larger profit margins in marginal, small and medium holdings. Studies have also shown that dairying and crop production together for small farmers having irrigated land was more profitable than crop farming alone. In India, because of the low per-capita availability of land, and also because of the skewed distribution of the available land resources, the crop-based rural economy needs to be diversified or converted into a livestock-oriented, mixed farming system for rapid economic development, income generation, poverty alleviation and providing employment to the rural masses.

4.2 The fact that Agriculture, the rural economy and land management – everything is intricately built around livestock, can be seen from the flow-chart at **Annex V – II (1)** to this report. The land produces plant life, which in the form of food grains, oil seeds, vegetables and crop residues, as well as legumes, green fodder, grasses serves as feed and fodder for cattle. While milch animals give milk and milk products for human consumption, draught animals serve as an invaluable source of power for agricultural operations, ploughing the fields, drawing water from the well and extracting oil from oil seeds etc., as well as for transportation of goods and people, especially in the rural areas. During the productive life of the animal, whether milch or draught cattle, as well as after the productive life, cattle give dung, which is an invaluable input for producing organic manure, which is put back in the land for enrichment of the soil in terms of restoring the nutrients. Dung is also used as fuel in the form of dried cakes for cooking and heating as well as for production of bio-gas. Slurry, which is a by-product of bio-gas is an eminently rich source of manure and is, in turn, usable for enrichment of the soil. Cow urine is also of immense medicinal value. Research in cow urine is gaining immense significance in cure of some diseases like cancer, renal failure and so on. Cattle urine is also a powerful natural pesticide and, if used properly can save human beings from the harmful effects of pesticide residues in every thing he eats and drinks. After dying a natural death, carcasses of cattle can be utilised for hides / skins and other by-products, at the same time providing employment to rural poor, who are traditionally engaged in this trade. While the various uses of the products and by-products of the cow and its progeny are discussed in detail further on in this report, the present discussion is only to high-light the inter-dependence of human beings, cattle and land resources.

Major Products and by-products of cattle

5. Milk

5.1 Production of Milk

5.1.1 In 1998, India attained the status of world leader in milk production. The figure of milk production in the country, which was 17 million tonnes in 1951 increased by 5 times to reach about 85 million metric tonnes in 2001-2002. The figures of milk production and the per capita milk availability over the years is given in the table below:

TABLE 8.12

Production and Per Capita
Availability of Milk

Year	Milk Production (Million Tonnes)	Per Capita Availability (Gms/per day)
1950-51	17	124
1960-61	20	124
1970-71	22	112
1980-81	32	128
1990-91	54	176
1996-97	69	202
1997-98	72	203
1998-99	75	211
1999-00*	78	214
2000-01*	**81**	**217**
2001-02*	**85**	**229**

* Provisional

5.1.2 Despite the quantum leap in the quantity of milk produced, the yield per animal is still one of the poorest in the entire world. A comparative statement of the yields per animal in some of the major milk-producing countries is given at Annex B to this report. The low average yields are attributed to the large numbers of non-descript cattle, which are poor yielders, and to the poor nutrition and feed given to the cattle. It is this low yield that had led to large scale cross-breeding with exotic cattle from the sixties onwards, which has in turn led to a depletion in the numbers of good indigenous breeds, some of which yield quantities of milk which are at par with the best cattle in the world.

5.2 Nutrients and other constituents of cow's milk

5.2.1 Right from ancient times onwards, the virtues of cow's milk have been extolled and there are many instances of such praise of milk as the perfect nutrient in literature, both ancient and modern.

5.2.2 In a seminar organized by the Love4Cow Trust in New Delhi on 7th July 2002, a number of scientists and researchers presented technical papers on the importance of cows' milk as a perfect nutrient for human beings. Two such papers are annexed to this report. Although, all the papers bring out the nutritional value of milk and the fact that, next to human milk, cow's milk is the best milk especially for infants, not enough work seems to have gone into comparing the qualities of cow's milk with that of buffalo milk. Comparative figures of the consituents of both types of milk have been given but, it appears that not enough study has been done with regard to the comparative advantages of cow milk over that of buffalo.

5.2.3 In his paper entitled "Cow's milk is Amrit", which was the theme of the Seminar, Shri I.K.Narang has brought out the importance given in ancient scriptures to cow's milk and its superb qualities. Shri Narang has given the scientific basis of the age-old and traditional views about the superiority of cow's milk and its nutritional value. A copy of the paper presented by Shri Narang is at **Annex V – II (2)**. In another paper entitled "Ayurveda Shastra Aur Go Chikitsa", presented at the same seminar, Dr. Vivekanand Pande has also given a detailed description of the various references in ancient Indian texts regarding the Ayurveda system of medicine and its emphasis on cow milk and its products. Dr. Pande has described the special qualities of the milk of different coloured cows and their use in various types of diseases. A copy of the paper presented by Dr.Pande is at **Annex V – II (3), Volume III** of this Report. Another paper presented at the Seminar by Ms. Kiranjeet Kaur, Dietician describes how cow's milk is an integral part of a balanced diet. She explains how, on account of low protein content of cow's milk (3.2 gm per 100 ml), as compared to protein content of buffalo milk (4.25 gm per 100 ml), cow's milk is ideal for infants and people with renal disorders. Also, on account of having practically half the fat content of buffalo milk, cow's milk reduces the risk of coronary heart disease. The contribution of cow's milk fat components as potential anti-cancer agents like Conjugated Linoleic Acid (CLA) is also discussed. A copy of the paper is at **Annex V – II (4)** to this report.

5.3 Is Cow milk better than buffalo's milk?

5.3.1 There are slightly differing perceptions with regard to the qualities of cow's milk as compared with that of buffalo milk. As stated earlier, not enough work seems to have been done in recent years to establish the theory that cow's milk is better than buffalo milk in several respects. On the contrary, buffalo milk is being preferred on account of its high fat content.

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5.3.2 However, according to Satish Chandra Dasgupta, Cow milk is better milk despite its lower fat-content and is more suitable for children and the invalids, as compared with whole buffalo milk. However, he points out that buffalo milk is rarely seen as such in the markets, as all buffalo-milk is watered down and then sold as standard milk, or mixed milk, or mostly as cow milk. (Dasgupta Satish Chandra, Cow in India, Vol.I, p.394, 1945).

5.3.3 Quotng from Sir Arthur Oliver's article entitled 'Live-stock Improvement in India' which appeared in the July 1937 in *Agriculture & Live-stock in India,* Dasgupta writes ".... But investigation has shown that pure-bred cows of certain Indian breeds of cattle can in a comparatively few years be improved by proper feeding and management to a point where they can compete successfully with the buffalo in economy of milk or butter-fat production. In view, therefore, of the greater general utility of cows as compared with buffaloes, in that they produce better working animals as well as milk, and of the important fact that cows' milk is a much better food, particularly for children than buffaloes' milk watered down to the same level of butter-fat, the question whether cows should not be bred and as well-fed and maintained as are she-buffaloes, is one which merits careful study". Dasgupta concludes that "The superiority of the buffalo as a milch-animal in so far as it depends upon its milk being passed off as cow milk after dilution with water to the cow's butter-fat content, by unscrupulous and uncontrolled hawkers, is no superiority". (Dasgupta Satish Chandra, Cow in India, Vol.I, p.195-6, 1945).

5.3.4 In the same vein, Dasgupta goes on to say that - " It is, therefore, quite clear that the so-called superiority of the she-buffalo as a milch-animal is a superiority measured with a weighted scale. By herself, devoid of these helps of fraudulent dealers who pass her milk as cow milk, devoid of help by the ignorance which puts no value on the protein and mineral contents of the milk, devoid of help by the cruelty that allows the male calf to be starved out, and thereby allows more milk to be drained out, the she-buffalo cannot stand against the cow on equal terms." (Dasgupta Satish Chandra, Cow in India, Vol.I, p.197-8, 1945).

5.3.5 Again, extolling the qualities of cow-milk-fat over buffalo-milk-fat, Dasgupta says that, "Recent investigations have shown that from the dietetic stand-point, buffalo milk is incomparably inferior to cow's milk. The dietetic value of butter-fat is due to its vitamine A content. Fats from vegetable oils do not contain vitamine A. As between cow-butter-fat and buffalo-butter fat, the cow-fat is over ten time richer in vitamine A than buffalo-fat." (Ref. Dasgupta Satish Chandra, Cow in India, Vol.I, p.203, 1945).

5.3.6 While discussing the issue of carotene content of cow ghee, Shri Dasgupta writes as follows: (Extract from Dasgupta Satish Chandra, Cow in India, Vol.I, p.533-5, 1945).

> *" Cow ghee contains ten times carotene vitamin : A decisive factor in favour of cow-ghee is that it is superior to buffalo-ghee as a nutrient.*
>
> *Besides fat, ghee has the most valuable constituent Vitamin A. It has been proved also that carotene, a colouring material, is the precursor of Vitamin A, and is really a Vitamin A substitute. The difference between cow and buffalo ghee lies in their carotene and vitamin contents. Cow-ghee contains ten times the carotene of buffalo-ghee. Cow-ghee has 20.9 I.V. units carotene per grain against 1.9 units of the buffalo – (Majumdar).*
>
> *In a paper on the carotene-content of cow and buffalo butter fat by Bal it is claimed that while the carotene content of buffalo butter fat is between 20 and 30 micrograms in 100 grams, that of cow butter fat is between 200 and 570 micrograms. (Bal and Shrivastave, Nagpur Universityh Journal, 1940, No.6).*
>
> *Cow ghee is superior to buffalo-ghee in regard to the stability of its Vitamin A towards heat. (Banerjee. Agriculture & Live-stock in India, January, 1937). The little vitamin that the buffalo-ghee has suffers worse under heat.*
>
> *Ghee has to be heated for cooking. On heating, buffalo-ghee loses more Vitamin A, than does cow-ghee. It has been found also that the presence of carotene works as a preservative, preventing destruction and oxidation of the ghee by storage (Banerjee. Agriculture & Live-stock in India, March, 1938), and buffalo-ghee has been found to have hardly any carotene (Majumdar).*
>
> *It will thus be seen that on all scores cow-ghee comes out many time superior to buffalo-ghee. Therefore, the two products, cow and buffalo-ghee, should be valued separately by the consumer and the seller. All these are reasons of health for which cow-ghee should be preferred to buffalo-ghee and cow-milk to buffalo-milk. The other and most overwhelming point has already been considered regarding the future of the cultivator, if he should continue to neglect the cow and give preference*

to the buffalo. It has already been show that the cultivator will be able to produce both ghee and milk cheaper from a well-nourished cow than from a buffalo.

In their own interests the cultivator-breeders should give preference to the cow in the milk and ghee market, and the consumer should also give preference to cow-products. "

5.3.7 According to the Textbook of Dairy Chemistry, by NDRI, Karnal scientists, Mathur, Datta Roy and Dinakar, published by ICAR, Pusa, New Delhi the following comparison has been drawn between the constituents of cow, buffalo and human milk:

Constituents of Cow, buffalo and human milk (per cent)

Constituents	Cow Mik	Buffalo Milk	Human milk
Moisture	87.6	81.0	87.4
Protein	3.3 / 3.4	4.3 / 3.9	1.6
Fat	3.6 / 4.9	8.8 / 6.6	3.75
Carbohydrates	4.5 / 4.1	5.0 / 5.2	6.98
Mineral matter (ash)	0.7	0.8 / 0.7	0.21
Calcium	0.12	0.21	-
Phosphorus	0.09	0.13	-
Iron	0.2	0.2	-
Vitamin A (IU/100 mg)	180	162	189.9
Vitamin B12 (mg/100 g)	0.05	0.04	-
Riboflavin (mg/100 g)	0.2	0.19	-
Vitamin C (mg/100 g)	1.6	1.5	4.0
Nicotinic Acid (mg/100 g)	0.1	0.1	-
Calories	67	117	-
Total solids	13.7	17.02	12.57
Solids-non-fat	8.8	9.2	8.80

5.3.8 It will be seen that, while buffalo milk contains more fat than cow milk, the quantity of Vitamin A is only slightly more in cow milk, which means that although cow's milk definitely contains more carotene than does buffalo milk, the vitamin A equivalent in both types of milk is not all that much different. More work needs to be done on the aspects documented by Shri Satish Chandra Dasgupta, who claims that cow milk fat contains 10 times more carotene than does buffalo-milk-fat, as brought out in preceding paragraphs.

5.3.9 The protein content of cow's milk is around 3.2 gms in 100 mls, and intake of two glasses of milk daily, provided almost one third of the protein requirement of an adult human being. Casein is one of the most important proteins present in milk. It is a phospho-protein, and is very effective because of its unique growth-promoting qualities. The other important protein constituents of milk are lactoalbumin and lactoglobuline, the latter being present to the extent of about half the quantity of the former.

5.3.10 The sugar present in milk is known as lactose, which is used in the production of infant foods and also for making confectionary, and for sugar coating medicinal tablets etc.

5.3.11 On account of its unique combination of ingredients and constituents, milk is an essential part of human diet and cannot be replaced by any other substitute. Cow-milk contains several minerals such as iron, which builds up the haemoglobin in blood. However, the iron content is not sufficient to meet the growing needs of babies beyond six months old. Milk also contains a large amount of minerals necessary for tissue formation, having calcium which is easily assimilated in the human system. Phosporus and vitamin D also contribute towards bone formation and prevention of rickets in children. Copper, manganese, zinc, iodine etc are also present in trace quantities in milk.

5.3.12 Colostrum, which is the precursor of milk when a cow starts lactating, is rich in lactoglobulin, which is a great nutrient and also carrier of antibodies and other immunising factors, passing on resistance to newly-born calves. Vitamins in milk, especially vitamin A, is directly related to the feed given to the cow.

5.4 Milk products

5.4.1 A variety of useful products are made from milk, the most important being ghee. Cow-ghee contains a very large amount of carotene, which accounts for its yellowish colour, as compared to buffalo-ghee which is white in colour. A useful off-shoot of the ghee-making process, is the resultant lassi or buttermilk that contains all the protein and vitamin contents of milk, except the fat-soluble components. Condensed milk, ice cream, rabri, sandesh etc. are the other products of milk which find favour with the human palate.

6. Medicinal Properties of cow products - Panchagavya

6.1 The medicinal importance of products obtained from the cow knows no bounds. Panchgavya, a mixture of five products of the cow viz. milk, urine, dung, ghee and curd / butter milk is a formulation of Ayurveda, which possesses healing properties against many disorders. Physicians from the Ayurveda system of medicine have been using remedies based on cow's products, either singly or in combination as Panchgavya, for centuries. In recent years, results of scientific investigations in India and abroad into the medicinal and curative properties of these products have created a lot of enthusiasm and hope, as they could be potent anti-cancer and anti-HIV agents. A detailed table showing the different formulations of Panchgavya treatement for various diseases as given to the Commission by the Gayatri Shaktipeeth, Bhopal is attached as **Annex V – II (5)** to this Chapter.

7. Cow dung

7.1 Cow or cattle dung has an astonishing and myriad variety of uses, which have been developed over a period of time. On going through some e-mails exchanged by some individuals the world over, (down-loaded from the ISCOWP web-site http://www.iscowp.com on Cow Conference texts), one came across a list of 101 Uses for Cow Dung, which was basically added on to by different members of the Cow conference discussions. The list goes like this:

101 Uses for Cow Dung

1. *Fuel - cow dung patties (goottee) for cooking*
2. *Fertilizer - composting makes it even more powerful.*
3. *Heat source - cow dung is naturally hot -compost makes hotter put in glass house to heat glass house or run pipes thru it to get hot water.*
4. *Purifier - natural antiseptic qualities*
5. *Floor coating - used mixed with mud and water on floors in mud houses. Improves water absorption of mud. Prevents muddy puddles resulting from spilt water.*
6. *Mud brick additive - improves resistance to disintegration*
7. *Skin tonic - mixed with crushed neem leaves smeared on skin - good for boils and heat rash (SP used it for heat rash in Mayapur.)*
8. *Smoke producer - smoldering cow patties keep away mosquitoes. Can also make smoked paneer over such smoke. Tastes great in pasta!*
9. *Ash - from patties used in cooking-Pot cleaner - used dry, absorbs oil and fat; wet, as a general cleaner.*
10. *Brass polisher - tamarind removes oxidation - wet ashes polishes.*
11. *Fertilizer - alkaline - cow dung ash is basically lime with a few other minerals mixed into it.*
12. *Mud additive - dries up slippery mud puddles. Mud brick additive - mud and lime (cow dung ashes) becomes like cement*
13. *Pond PH balancer - thrown into pond neutralizes acid.*
14. *Tooth polish*
15. *Sun-dried organic recreational-aerodynamic-device -cow patty Frisbees;*
16. *Fan for fire - large cow patties can be used as make-shift fans.*
17. *Deity worship - ingredient in pancha gavya*
18. *Seed protector- covering seeds in dung before planting helps to protect against pests.*
19. *Fresh Cow urine taken thirty days straight is an ayurvedic remedy for Brights disease.*
20. *Disposable camphor lamps for use during fire sacrifices.*
21. *Another use of cow pies (and camel dung) mix with fresh water till you have a paste and apply to skin diseases. It seems to work to ease the Itching of psoriasis.*
22. *If you soak your feet in cow urine it will cure athletes feet.*
23. *Fresh, less than hours old cow urine seems to have some helpful effect on teen age pimple eruptions. Wipe on face before going to bed. That is in an old herbal book I found??? wash off in the morning!*
24. *Smoke from Cow-dung or coal actually increases our eyelids to close & open so many times & lot of water from the eyes comes out & the advantage is that it increases the vision life of a person to old age also.*
25. *For seed-raising –*

26. *I also use cow dung on insect stings let it dry and then wash with hot soapy water.*
27. *Cow urine can be used for stones (kidney, gall etc.) shot glass full first thing in the morning fresh from the cow for 21 days (uric acid in cow urine dissolves these stones to a manageable size.*
28. *Apparently, the traditional Indian village system of wiping the floor daily with a mixture of water and fresh cow dung assures that flies will not settle there.*
29. *Dr. Laxmi Narain Modi in his presentation for the Livestock Policy Perspective 2020 July 5-7 1995, held in India stated:*

    "Dung and urine from cows and bulls (cattle) are essential for organic manure (OM) which is used in the construction of new houses, frequent coating of floors and walls of mud houses to protect from insects, and as a base for bio-gas programs. There are innumerable other uses for traditional medicines."
30. *Urine was used to bleach wool in the middle ages up until sixty years ago.*
31. *Cow urine used to restart a biogas plant that has "stalled" when the biocomposting won't start or fizzles out in mid process then it can be jump started by adding ammonia (a BI -product of urine).*
31. *The dung ashes makes excellent tooth power.*
32. *A good "cement" is made by mixing dung with water and mixing with dirt. The salt in the dung keeps the moisture in the "cement " from drying out as easily and the "Cement" feels cool and almost damp and lowers the temp in a well insulated house by ten or twelve degrees.*
32. *Molding fresh pies into various shapes like rabbits and frogs and selling them as art / fertilization art. Place in a flower pot and a little fertilizer leaches out with each watering and the Poo pet slowly dissolves into the soil.*
33. *If you make a biogas composer you can cook off the gas from the dung then when all the gas has been used up, you still have excellent compost in liquid form to place on your garden.*
34. *To break the parasite infestation whenever possible collect and place all dung and urine from all animal and human sources in a bio-gas generator. The digester turns the dung into sterile compost all worms et killed, and as a by product produces a gas called methane which is half as hot as propane but you can still use it to cook or run a generator to produce electricity. It is free and cleans up the area the finished product is essentially sterile and can be spread on crops as an excellent fertilizer.*

7.2 The above list is by no means exhaustive and can still be added on to by imaginative and innovative cow-lovers and other persons. The primary uses of cow or cattle dung can be said to be for organic farming on one hand and on burning of cow-cakes for fuel on the other. There are also other important uses of cattle dung such as for production of bio-gas etc. All these will be dealt with further in this report.

8. Organic Farming

8.1 Over the years, the farmer in India had been using cow dung and cow urine as manure in his fields. However, due to unscientific methods of collection and management of the by-products such as dung and urine, a lot of wastages occurred. Also, a good part of the dung collected was being dried and used as fuel-cakes. With the advent of composting methods, production of organic manure on a scientific basis resulted in the yield of a product, many times richer in soil nutrients than plain cow dung manure.

8.2 We have already noted the close and intricate relationship of interdependencies between land, man and cattle. The economists who postulate the theory that man and cattle are competing for limited land resources and, therefore, cattle numbers have to be kept limited to a sustainable level, which is an euphemistic way of saying that surplus cattle should be slaugthered. However, as pointed out by Dasgupta (Dasgupta, Cow in India, Vol.1, p.17) this triangular conflict theory had left a gap for plants, and the theory should actually be seen as a quadrangular theory, where plant life plays a vital link and production of crops should be maximised to contibute to the food and feed chain. Even when Dasgupta wrote his book (in the early 1940s), as noted by him, the crop yield per unit area of land was twice in China and three times in Japan, as compared with India.

8.3 Dasgupta has described the pioneering work of one Dr. Erhart Bartsch, who converted a life-less piece of land in Marien-hole in East Germany into a vibrant farm, using cattle as the central figure. Starting with an inheritance of 13 sickly cattle, who were infected with all kinds of diseases, Dr. Bartsch first grew fodder to feed the cows, which then gave manure back to the soil, resulting even better yields of fodder crops. Through intensive bio-dynamic manuring, the farm was rejuvenated, over-flowing with milk, which was supplied to neighbouring estates. (Dasgupta Satish Chandra, Cow in India, Vol.I, p.25, 1945).

8.4 On similar lines, Sir Albert Howard, who came to India as Imperial Economic Botanist to Government of India in 1905, initiated what came to be known as the Indore Process, which involved collection of vegetable and plant waste and treating the heap with cattle dung and urine, to produce compost which had much better manurial qualities than dung directly applied. As a result of this Process, it was found that, in view of the shortage of cattle dung, which was being mostly used as a fuel for cooking and heating purposes, the solution of the manurial problem was to be found in the combination of animal and vegetable wastes. Thus, the concept of green manuring and composting came into being. At Pusa, Sir Howard proved that the use of chemical fertilisers and occurence of plant and soil diseases go hand-in-hand. He kept six pairs of bullocks, which were fed on organic produce of his farm. These bullocks became healthy and resistant to diseases like Foot and Mouth Disease, even when other animals at Pusa got infected with the disease.

8.5 In the context of the wide-spread use of chemical fertilisers in Western agriculture, Dasgupta quotes from Sir Howard's book entitled 'Agricultural Testament' as follows: " In the years to come, chemical manures will be considered as on of the greatest failures of the industrial epoch. The teaching of the agricultural economists of this period will be dismissed as superficial" (Dasgupta Satish Chandra, Cow in India, Vol.I, p.36, 1945). These words of Sir Howard, written so many decades ago, have indeed proved to be prophetic. Today, Western countries are increasingly moving towards organic and bio-dynamic farming processes, with organically produced agricultural produce fetching higher returns for the producers.

8.6 It is now established that by use of mechanical tractors to replace bullock power and by using chemical fertilisers, quick profits can be obtained in the short term, due to higher yields and quicker cultivation processes. However, the devastating effects on soil fertility, the health (human and animal) hazards of pesticide residues in food items including milk, and the cost of restoring the nutrients to the soil are all to be taken into account. In the long term, therefore, these practices prove much more costly and all the profits vanish. The age-old practices of using dung from cattle for manuring the fields and using bullocks for ploughing so that their dung goes back into the land, need to be restored. With the process of converting cow dung into compost, which is many times better than spreading the dung directly on to the fields, value can be added and the results in the form of better yields, more healthy foods and feeds can be perceived quickly.

8.7 Dasgupta points out that "Even in their apparent uselessness, the so-called useless cattle will be economically useful if we know how to make compost out of their urine and dung and utilise these manures fully in the fields for better crop production. The cow will pay for her maintenance through the increased output of compost made from her dung and urine and cease to be a burden, and to stand as a wall before our economists and scientific men. Then, when the useless animals are made useful in disregard of the exhortations of scientists and economists to slaughter them, and as these begin to pay their way, other very many blissful things will follow, if we stick to those sound, basic principles that helped to keep India alive inspite of our intelligent men themselves following and calling upon others to follow the lead of a dying, hungry, self-centred, monstrous machine-civilisation. (Dasgupta Satish Chandra, Cow in India, Vol.I, p.41, 1945).

9. Manures and fertilisers in the Planning process

9.1 Tracing the importance given to increasing the use of chemical fertilisers through India's Planning process, we find varying degrees of emphasis on chemical fertilisers, while at the same time organic manures have also been discussed in the different Plans.

First Five Year Plan

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9.2 In the First Plan period the annual target of consumption of various types of fertilisers was 6,10,000 tons of nitrogenous fertilisers, 1,76,000 tons of superphosphates and 50,000 tons of bone-meal. The Plan document speaks of the criticism from some quarters about the introduction of chemical fertilisers, without full steps being taken to mobilise all the manurial resources of the organic type. The Planners acknowledge that this criticism was just to the extent that it stresses the need for mobilising such resources. However, they felt that the two processes could go on simultaneously as both the types of manures were necessary for maintaining and increasing soil fertiity. The use of chemical fertilisers in conjunction with bulky organic manures was recommended.

9.3 As regards use of organic manures, increase in production as a result of increased use of this type of manure was expected but no estimate was attempted. The Plan document notes that the addition of bulky organic manures like farmyard manure, which is a by-product of farming with bullocks, helps the soil by increasing its water-holding capacity, improving soil-aeration, and by changing the plant nutrients through slow decomposition into forms readily available to plants. There are other advantages in the use of organic manures, viz. a) steadiness in yield over a period of time, b) benefit to the succeeding crops by their residual effects and c) ability to withstand unfavourable weather conditions. On the basis of the 1951 Livestock Census, the total production of fresh dung was estimated at 800 million tons, around half of which was estimated to be used as fuel by the farmers. It was felt that this dung should also be saved for use as manure by creating village forest plantations and popularising the use of coke as a domestic fuel. The Plan document also recommended that, since cattle urine was a very good manure, due to its high nitrogen content, conservation of cattle urine, which was going waste, should be promoted as a part of extension activities in all States.

Second Five Year Plan

9.4 In this Plan period, the estimate of nitrogenous fertiiser consumption in the country annually was expected to go up to 1.8 million tonnes. The procurement and distribution of chemical fertilisers on a greatly-expanded scale was envisaged. No special mention has been made about use of organic manures in this document.

Third Five Year Plan

9.5 The Third Plan document evisaged targets of consumption of chemical fertilisers and organic & green manuring as follows:

Annual Consumption of chemical fertilisers by the end of the Plan (1965-66)

a) Nitrogenous	1 million tons
b) phosphatic	0.4 million tons
c) potashic	0.2 million tons

Organic & green manuring]

a) urban compost	5.0 million tons
b) rural compost	150 million tons
c) green manure	41 million acres

9.6 The Plan document notes that there was a rapid growth in the demand for chemical fertilisers, which had to be met. Regarding organic manures, it was found that sufficient stress was still not being laid in extension work for development of local manurial resources. Some progress was noted in the development of cowdung gas and manure plants suitable for use in villages. However, high cost of the gobar gas plant developed by IARI (Rs.400 to 450) was inhibiting its adoption on a larger scale.

9.7 The Plan document, while speaking about non-commercial sources of energy, notes that dried cattle dung was the main source of energy for cooking and heating throughout the rural areas and also in some urban areas. It was estimated that the amount of cattle dung annually available was 1200 million tons, of which 400 million tons was used as fuel, 215 as manure and the remaining was wasted. As a percentage of the total energy consumption in the country, cattle dung accounted for 27.9 per cent, according to the Plan paper.

Fourth Five Year Plan

9.8 The Plan document for the Fourth Five Year Plan says that a significant increase in fertiliser consumption was a crucial element in the agricultural strategy, to get optimum yields of new cereal varieties and for development of commercial crops. Targets of fertiliser consumption were raised to 3.7 million tons (nitrogenous) and 1.1 million tonnes (phosphates) and 1.1 million tons for potash based fertilisers. A major programme was started for intensification of extension and sales promotion activities so as to step up fertiliser consumption.

9.9 For manufacture of good quality of organic manure out of urban waste, a programme for setting up mechanical compost plants was invisaged. No separate programme for utilisation of rural waste seems to have been thought of, although a green manure programme was sought to be developed.

Fifth Five Year Plan

9.10 This particular Plan does not have any details about various aspects of planning for Indian agriculture. There is a passing mention about the provisions made for important programmes including distribution of fertlisers and the fact that emphasis has been placed on developing organic sources of manure and higher outlays have been provided for setting up of biogas plants.

Sixth Five Year Plan

9.11 The agricultural strategy ensivsaged for this Plan period in the area of soil-nutrient supply, includes harnessing of organic and biological sources of fertilisers, in addition to increasing the supply of mineral fertilisers. Quite a lot of stress has been given to organic recycling by utilising organic wastes in the form of crop residues (estimated to amount to 1000 million tons annually) and cattle dung and other animal droppings (300 to 400 million tons). Use of organic materials for biogas production and use of the resultant slurry as manure has also received attention. It has been proposed that large scale use of composting techniques would be used by designing simple and low cost composters for use in rural areas. Biogas development has been envisaged as a major energy provider resulting also in saving millions of tons of forest wood.

9.12 The Plan paper notes that the consumption of fertilisers had gone up steadily, with the target for the sixth Plan being 6.0 million tons for nitrogenous fertilisers as against 0.61 million tons in the First Plan. While stepping up the infrastructure for fertiliser distribution to meet the increasing demand, the Plan document also recommends that steps be taken to promote the conservation and use of all organic wastes and biological sources of nitrogen fixation and supply. The objectives of the Sixth Plan have been stated, thus: s) to have equitable and efficient fertilizer distribution system in the country accompanies with a proper infra-structural and organisational support; b) to reduce regional disparities in fertilizer consumption; c) to ensure that benefits of fertilizer use are received by all sectors of the farming community, especially the small and marginal farmers; and, d) to promote integrated nutrient supply system by better and increased mobilisation of organic and bio-fertilizer resources in order to supplement and optimise use of chemical fertilzers as also to maximise efficiency of fertlizer use.

Seventh Five Year Plan

9.13 The Plan envisages a further enhancement of target of fertilizer consumption, with nitrogenous fertiliser target pegged at 9.10 to 9.30 million tons. While several steps were envisaged to achieve these target, in respect of organic manure, it has merely been stated that attention has to be given, in an increasing measure, to the conservation and use of organic wastes and biological wastes for nitrogen fixation and supply for which adequate outlays would be provided for the new programmes in this regard.

Eighth Five Year Plan

9.14 While no specific programmes appear to have been drawn up, the target for fertiliser consumption was further hiked, reaching 11.50 million tons in the last year of the Plan (1996-97) in respect of nitrogenous fertilisers alone.

Ninth Five Year Plan

9.15 The Plan notes that the total consumption of fertilisers (NPK) during 1996-97 was 14.31 million tons, while the total nutrient requirement in the terminal year of the Ninth Plan was projected at 20.0 million tons. It was envisaged that, during the Ninth Plan, greater use of bio-fertilisers and bio-technological research in this direction would be encouraged. A strong network of all associated activities was to be set up including, inter alia, the Integrated Plant Nutrient Management system, use of organic sources and bio-fertilisers, use of legumes by farmers for generating and sustaining the inherent nutrient potentiality of soils, followed by application of chemical fertilsers. Promotion of bio-pesticides would also be undertaken in the Integrated Pest Management programme.

Tenth Plan Proposals

9.16 The Planning Commission had set up a Working Group on Organic and Bio-dynamic Farming for framing the proposals for the Tenth Plan. The Working Group found that organic and bio-dynamic farming had special significance in dryland agriculture, constituting 65% of our cropped area. The recommendations, in the form of suggestions of individual members of the Working Group, inter alia, include the following:

- The comparative nutritional quality and flavour of agricultural crops produced by organic farming as opposed to those produced by high fertiliser input cropping systems should be assessed.
- Farms organically producing lentils etc. for various Rajasthani food products like Bhujia etc. should be certified as organic farms, so that their produce fetched better returns to the farmers / cultivators.
- Government of India should launch a programme for recovering traditional farming knowledge of Indian farmers, who have always practised low input-based agro-ecologically sound agriculture. As series of workshops and seminars should be organised, where farmers can assemble to share their farming secrets and experiences with other farmers and interested groups.
- Increase in agricultural production should necessarily satisfy parameters that guide sustainability based on local adapatability, social acceptance, economic viability and ecological soundness.

- Organic farming, being a system approach, should be viewed and experimented using inter-disciplinary programmes.
- A viable basis for an alternative for the Green Revolution model has to be developed, for which the 'alternative theory of indirect nutrition' can provide an answer. The theory of transmutation of elements has to be studied further through institutions in the country.
- Large-scale use should be made of cattle urine and manure as the most effective and cheap source of plant nutrients.
- Certification procedures for organic produce should be made simple and accessible to the small farmers.
- Marketing linkages should be established to make available improved composting methods, biofertilisers and bioagents to these small holders.
- Training centres should be set up in all agricultural colleges and KVKs on preparation of manures and biofertilisers and benefits of organic produce should be included in the curriculum in schools, home science and medical colleges, while at the same time spreading public awareness about the harmful effects of agro-chemicals.
- A broad-based think-tank should be established to formulate approach and line of direction for research in organic farming. A Centre of Excellence should also be established, for documenting indigenous technical knowledge and for making an inventory of national resources for promoting organic farming on a large scale.
- A regulatory or certifying authority should be established for quality control of organic produce.

10. National Commission on Agriculture

10.1 In Part X of its Report submitted in 1976, the National Commission on Agriculture has inter alia found that, for success in modernised farming, an efficient and balanced use of fertilisers and manures is imperative. The Commission also notes that in the farming system of the country, the dominant role of fertilisers has come to stay. A lot of emphasis has been given to the promotion of fertilisers and stimulating the demand for such fertilisers. At the same time, it has been recognised that the performance of chemical fertilisers in the soils is not fully realised in the absence of an adequate amount of organic matter. Rural compost programme covers a very wide area and offers a gigantic potential of organic manure and plant nutrient resources. The Commission found that more than 40% of rural compost was constituted of dung, most of which is used as fuel. The annual production of dung was estimated as corresponding to 2.9 million tons of nitrogenous fertiliser, 1.5 million tons of phosphates and 2.5 million tons of potash. By comparison, the total consumption of all three types of fertilisers was 2.3 million tons, with a corresponding food grain production of 108 million tons. The Commission felt that the loss in manurial caused by the use of cattle dung as fuel was enormous, and it could be arrested by introducing gobar gas plants, which would enable retention of both the fuel and manurial value of dung. The Commission also pointed out that the importance of organic manure and organic matter lay not so much in supplying plant nutrients as in permanently improving the physical and biological conditions of the soil.

10.2 The recommendations of the National Agricultural Commission on Soil Organic Matter and Organic Manures include the following:

- Bulk and consequent cost of transport are handicaps in the application of processed organic wastes to the field. Suitable methods of reducing bulk by chemical and microbiological or other methods need to be evolved. Enrichment of organic wastes with nitrogen and phosphates will considerably enhance their manurial value.
- The programmes of development of organic manures by the Ministry of Agriculture and Irrigation in which urban and rural composts, sewage and sullage etc. are being mobilised are attempts in the right direction. The manner in which the urban wastes are processed determines its manurial value, which can be enhanced by suitably treating them with ammonium and phosphatic compounds.
- Centres for utilisation of sewage and sullage should multiply and develop as a continuing venture.
- By introducing gobar gas plants the energy requirements of the farmer's household can be met, retaining the manurial value of the dung. Rural population should be given adequate technical guidance and help in making use of this innovation.

11. Task Force on Organic Farming

11.1 The Department of Agriculture and Cooperation, in May 2000, set up a Task Force on Organic Farming under the Chairmanship of Dr. Kunwarji Bhai Jadav, to collect information on Organic Farming, assess the appropriate techniques and technologies of such farming and setting up of standards. The Task Force was required to suggest measure for development and propagation of Organic Farming and also to suggest measures for the marketing of the produce of Organic Farming.

11.2 In its Report, submitted in November 2001, the Task Force has stated that India has been historically practicing organic farming, live-stock being treated not only as a source of nutrition in the form of milk and meat, or of energy in the form of draught animals but urine and dung being utilised as a major cog in the growth process. The Report has found that the use of chemical fertilizers and pesticides lead to ill effects on soil fertility and it was essential to return to the soil the nutrients that were taken from it in plant formation.

11.3 The Task Force has made a number of recommendations. The ones relating more closely to the subjects matter of the terms of reference of the National Commission on Cattle are reproduced below:

- Bullock drawn implements should be encouraged.
- Bio-gas plants need to be popularised to have the dual benefits of gas for lighting and manure for crops.
- Programmes need to be continued or initiated for evaluation and promotion of organic sources of nutrients through bio-fertilisers, vermi-compost, press mud, coir pith manures, urban compost, bio-gas slurry and non-edible oil-cakes etc.
- Each KVK may set up a vermi-compost unit and a biological control unit for demonstration and dissemination of the techinques. These centres may also provide worms to the farmers after their training.

- All the Central Government farms may set up vermi-compost units and develop and demonstrate the system of recycling of crop residues. This may be demonstrated by reduced consumption of chemical fertilisers on the Government farms. The numbers and capacity of vermi-compost units may be according to the size of the farms.
- The ventures of vermi-compost, compost, press mud and other forms of generation of organic nutrients for crop production may be exempted from levy of all kinds of taxes, excise and income tax etc.
- The concept of organic farming as a sustainable and better alternative should be propagated by the leaders of the Government in order to create a favourable environment in its support in the country.
- A National level permanent Board may be set up to oversee the promotion of organic farming in the country and to coordinate this activity with all concerned Union Ministries, national level bodies, State Governments, Research Institutions, Universities & others.

11.4 The National Cattle Commission notes that the Task Force has not distinguished between cow dung from other forms of animal waste, which is used for preparation of composts used in organic farming. However, it is a well-known fact that bulk of the recoverable animal waste in the country is in the form of cattle dung and urine, both excellent for use in organic manure because of their high nitrogen content and their easy availability in the rural areas. Therefore, the Commission accepts the recommendations of the Task Force insofar as they relate to utilisation of animal wastes, including cow dung and urine.

11.5 In particular, the Commission finds that the recommendation for a National level permanent Board to be set up is very important. At present, cattle development programmes lie within the purview of the Department of Animal Husbandry, whereas organic farming comes under the Department of Agriculture and Cooperation. Thus Agriculture Department can be said to be the user Department for cattle dung and urine, whereas Animal Husbandry is at the producer end of the cycle. Research is done by the ICAR Institutes coming under Department of Agricultural Research and Education. Composting techniques are conveyed to farmers through extension and demonstration activities organised by the Department of Agriculture and Cooperation. For certification of organic produce for exports, APEDA and the Ministry of Commerce is involved. For draught animal power, the Department of Non-conventional Energy Sources is the nodal agency.

11.6 The multiplicity of agencies, as described above, and the lack of communication between various players in the area, leads to total confusion. A concerted effort needs to be made to coordinate all the efforts and frequent interaction should take place between the various stake-holders. NGOs, Goshalas, and Farmers' Associations should be involved in the entire exercise and resources of Agricultural Universities and their knowledge-bases should be utilised. A permanent Board of the type suggested is, therefore, the need of the hour, as it would provide the interface and the forum for such interactions and exchange of knowledge to take place.

12. Dung is a Gold Mine

12.1 As brought out in the Preface to his article entitled "Dung is Gold Mine", (published by the Viniyog Parivar Trust, Mumbai), Shri Venishankar M.Vasu has brought in simple language but with hard facts, figures and proofs the consequences of government policy of slaughtering animals, which are either not yielding milk or are useless as draught animals. The preface goes on to say "The government has forgotten the third most important service rendered by animals i.e. providing dung which has been at the root of well-laid out social and economic systems adopted by the Aryan population of this great nation since time immemorial". A copy of the article of Shri Vasu is at **Annex V – II (6)** to this Report.

12.2 Shri Vasu has highlighted the unique and essential role of bovines and bovine dung in our economy and has pleaded that the slaughter of our precious animals should be stopped. Shri Vasu has tried to establish that Dung and only dung was the only solution to problems of shortage of food grains, water, fuel, shelter, good health, nutrition, eradication of poverty and unemployment. The important concepts highlighted by Shri Vasu can be summarised thus:

- Dung is the nucleus of our prosperity and has not substitute.
- Our ancient system of medicine i.e. Ayurved cannot subsist in the absence of dung.
- With growing age, an animal may become useless for milk production, field work or for breeding. However, its age is never a detriment to its service for providing dung.
- No other fertilizer in the world is as cheap and harmless as dung fertiliser.
- Unfettered slaughter of animals resulted in disruption in the availability of cattle dung, forcing farmers to use costly and harmful chemical fertilisers.
- By cutting down the availability of bullocks and forcing the use of tractors, the farmer has become dependent on others for availability of fertilisers and tractors. By burdening farmers with the heavy costs of inputs, the cost of production has gone beyond the paying capacity of the farmers.
- Land has lost its fertility and nutrients of the soil have been extracted and not replaced. To replenish such nutrients, cattle dung or organic manure in the best, cheapest, harmless and most easily available manure. The average nutrient in terms of percentage of nitrogen, phosphoric acid and potash contents of different types of manure have been compared. (It is noted here that the composition of cow and buffalo dung are the same).
- If soil has to be prevented from becoming barren, it is necessary to apply 10 bullock cart loads or 5 tonnes of dung manure for each acre of land. With this level of manuring, the yield per acre of different types of crops is given. (It is noted that the yield with optimum level of cow dung in terms of kg/ha is even more than that quoted for fertiliser based production yields).
- Experiments described in Satish Chandra Dasgupta's book 'Cow in India' showed that use of natural manure resulted in yields of 6 and 3 ½ times greater for rice and grass compared to yields without natural manure.
- Government subsidies on fertiliser production were burdening the poor farmers and high prices of food grains were the root cause of inflation.
- As a result of large-scale slaughter of animals resulting in non-availability of dung, millions of Hindus and Muslims, mostly women, have lost their age-old profession of making and selling dung cakes. If a bullock survives even for 5years after

becoming useless, it can provide employment to a person for 5 years, whereas, a butchered bullock can provide employment only for a day or two.

- Potters in villages used to build houses and make roof tiles out of mortar, which is a mixture of cattle dung, clay and horse dung. Because of non-availability of dung, the potter has lost his profession.
- Mid-wives in villages, who used to provide oil massage and slow fomentation with burning of dung-cakes to rural women after child-birth have also lost their profession.
- The 16 religious rituals or Sanskars of Hindus cannot be performed without cow dung. Even for the Agni Sanskar, cremation of the dead body on a pyre of cow-dung cakes is required to be done, which is now replaced by a wood-pyre due to non-availability of dung. When an adult bullock is slaughtered, it affects the Sanskar of 10 persons every year and 100 persons in its lifetime.
- Cow dung is also used to purify many medicines such as Bhasmas and herbal medicines. Scarcity of cow dung is affecting the very basis and existence of the Ayurved system of medicine.

12.3 On the subject of value of dung, the extract of the relevant paragraphs of Shri Vasu's article is reproduced below:

> ***"Value of Dung***
>
> *What is the value of cattle dung? Does this question still need an answer? The value of dung is much more than even the famous Kohinoor diamond. "How is it viable to maintain an old bullock which consumes grass of Rs 700 in a year and in return gives dung and urine worth only Rs 500 ? How absurd, unscientific and hollow this argument is, is clear from what is described below. The market price for any commodity can be manipulated (i.e. increased or decreased) by speculation and hoarding, by administrative measures, or by similar calculated action. But this cannot alter its value. Grass can be priced as Rs 1 per kg or Rs 5 per kg also. But its value as the means to help animals to survive, to feed them and to give them strength cannot be altered. The stalk of food grain plants which becomes useless after removal of food grains from it, is the food for animals. When this useless stalk is returned by animals in the form of their dung, its value is astonishing. Even an old bullock gives 5 tons of dung and 3,443 pounds of urine in a year, which can help in the manufacture of 20 cart loads of compost manure. For cultivating jowar and bajra on dry land, 5 carts of compost manure is required for each acre. Thus, the compost manure provided by one single old bullock can meet the manure need for 4 acres of land. On irrigated land with the help of such manure, about 2,800 to 3,600 kg of bajra can be grown on 4 acres of land and where irrigation facility is not available, the yield can be about 1,500 to 1,600 kg. This can feed about 10 to 12 human beings throughout a year. Thus there is a wide difference between concepts of price and value. Whether the food grain is priced at Rs 1 per 10 kg or Rs 10 per 1 kg, it does not affect the intrinsic value of the food grains. Its value lies in the utility of providing nutrition and life to human beings. The right to life is a fundamental right and it can be basically protected only with proper food and feeding and the cheap and nutritious food grains required for feeding can be*

> *grown with the help of dung. Thus, the most fundamental thing to the fundamental right of living for the human beings is bovine dung. It is absolutely foolish to evaluate this function of dung in monetary terms. A servant employed by us, has to be paid wages for his labor. He demands wage rise, he also demands bonus, he resorts to strike if bonus is less than his expectation, and also abuses the employer. But our servants in the form of these dumb cattle do not demand any wages from us, do not demand any wage rise or bonus. They survive on whatever we offer them to feed, and in return even favor us with a bonus in the form of most valuable dung. And still we are after the blood, meat, hides and skin of such animals and for that we slaughter them alive. We do not wait till they die their natural death to get their hides and skin."*

13. Medicinal properties of Cow Urine and Dung

13.1 The value of cow urine for medicinal purposes has been mentioned in passing in fore-going paragraphs. The use of cow urine therapy, which is in use over the centuries as a traditional ayurvedic practice, is gaining recognition and acceptability the world over due to recent advances in research in this type of therapy.

13.2 In the paper entitled 'Gomutra Aur Gobar Se Rog Nivaran', Vaid Shri Balkrishnaji Goswami has stated that cow urine is a blessing for human and plant life. It is an approved, natural, easily available, harmless, beneficial compound, which offers protection against a number of diseases. He has given examples of how certain diseases like liver problems, constipation, piles, water retention, gas, obesity, skin disease, chronic cold, cardiac problems, arthritis, high cholesterol and so on. Cow dung is also used in cases of malaria, itching, snake-bite, burns, dental problems like pyorrhea and cholera.

13.3 Another paper entitled "Gomutra Ki Tulna Mein Koi Maha-aushadi Nahin", Shri Rameshwarji Poddar has also brought out the fact that cow urine has the property of destroying all diseases. The paper of Shri Poddar has been discussed in Part I of Chapter V.

13.4 As stated earlier, Gomutra 'Ark', which is a product of fractional distillate of cow urine, is extremely effective in renal disorders. It is also very effective against some hepatic disorders. It may also serve as a support to anti-cancer treatment, because of its ability to bind free radicals. In June 2002, a patent under U.S. laws was granted for the 'ark' developed by Indian scientists under the patronage of the Council for Industrial and Scientific Research, which is a major break-through for this type of research. The ability of cow urine to prevent chromosomal aberrations has also been demonstrated by research conducted at the national Environmental Engineering Research Institute (NEERI) at Nagpur.

13.5 As brought out in a Seminar organised by Go-vigyan Bharati, there are 16 different types of micro-organisms in cow dung which destroy harmful bacteria present in urban waste. It was also said that there are 16 minerals in cow dung and 24 in cow urine, which are beneficial both for human and plant life, for restoring the soil nutrients.

13.6 During the public hearings held by the Commision several examples were submitted of patients who were cured of certain diseases by use of cow urine therapy. Unfortunately, medical records in a systematic way were not made available to the Commission. However, it has been established that cow urine and dung have tremendous medicinal properties and it is necessary for research in these areas to be augmented even further.

14. Use of cattle urine as a pesticide

14.1 The insect-repelling properties of Cow's secretions and the use of cattle urine as a pesticide has been discussed in Part I of this Chapter in detail. The advantages of using these pesticides are manifold. It is widely recognised that chemical pesticides, have very harmful effects on the human and animal systems, as residues of these chemicals find their way into the blood stream and organs of people, who ingest food produced from these crops, leading to tremendous harm from the toxic effects of these chemicals.

14.2 Tests were got conducted at the Department of Soil Science and Agricultural Chemistry, CSA University of Agriculture & Technology, Kanpur on samples of dung and urine sent by the Kanpur Goshala Society to scan them for common pesticides to see whether the pesticidal properties were due to presence of these pesticides. However, it was seen that the samples did not contain any of these pesticides. Further analysis of the composition led to the theory that the presence of sulphur, potassium, zinc, iron and copper might be responsible for the resistance to disease on application to foliage of plants. However, this remains a theory, which needs to be further investigated and supported by scientific research.

14.3 In preceding paragraphs, we have already seen how cattle urine is very beneficial in organic manure, due to its high nitrogenous content. Both cow dung and cow urine are essential components for a good compost. Cow urine is also a good source of bio-energy.

14.4 Fertilisers from Cow Horn (Seengh Khad) is another innovative product which helps in nitrogen and phosphorus fixation when put into soil and acts as a very potent and powerful manure. A mixture of cow dung, cow ghee and honey is filled in the hollow of a horn of a dead cow, which is then sealed with cow dung and buried in a pit. The pit is filled with cow dung and allowed to lie there for six months, after which the horn is taken out. The contents of a single horn, when sprayed after mixing with water, enhances the fertility of one acre of land.

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15. Bio-gas and fuel uses of dung

15.1 Cow dung cakes have been traditionally used by villagers in India as a common fuel, along with firewood. As pointed out by Vasu, in his paper 'The Secular Cow Economy' published by the Viniyog Parivar Trust - copy at **Annex V – II (7)**, the electricity and piped gas as a source of energy for the rural masses is unavailable to the vast majority of our populace which live in villages. The other sources of fuel such as wood and coal have resulted in depletion of forest cover of the country leading to huge ecological and environmental problems. Kerosene is in short supply and the prices are unaffordable by the villagers even if the product is reached to them. Therefore, the only remaining alternative source of fuel for rural masses is cow-dung cakes. The demand for this fuel can only be met if the population of cattle is increased. The ash obtained after burning cow-dung cakes acts as a very good fertiliser. It can also be used for cleaning utensils thus saving us from the harmful effects of using chemical cleaning agents.

15.2 Generation of bio-gas from cow dung and urine is a very simple cost-effective way of producing energy for lighting as well as cooking. In rural areas, simple equipment can be installed for bio-gas generation. Even in urban and semi-urban areas, people who have accessibility to sufficient amounts of cow dung are installing these generating equipments and sufficient gas is generated to take care of the lighting and heating/ cooking needs of whole families from the output of a pair of cattle.

15.3 Production of bio-gas results also in the production of a very useful by-product in the form of slurry, which is an extremely good manurial source and it contains nitrogen. If cow-dung cakes are directly burnt to get fuel, the rich source of nitrogen is lost. If however, bio-gas is produced with the same dung, not only are the fuel needs met, but the manurial requirements and soil-enrichment can also be met.

16. Draught Animal Power

16.1 Energy is an important infrastructural requirement for development of any economy. Domestication of animals, especially cattle, use in agriculture and for transportation began in India many centuries ago. In this country, a vast majority of our rural populace are still very much dependent on cattle for ploughing the fields, running small oil-crushing mills, drawing water from the wells and transporting house-hold goods (nomadic tribes) or marketable goods and produce.

16.2 In India, 83.4 million land holdings (78% of the total) are less than 2 hectares in size, where tractors and tillers are uneconomical as they are viable only in holdings of more than 5 hectares. The use of animal power becomes inevitable in these small holdings. It is also seen that tractors are not suitable for slushy / water-logged fields and hilly terrain, where cropping is done in terraced fields, too narrow for these vehicular equipments. On the other hand, animal drawn vehicles are suitable for uneven roads, short distances. It is estimated (Tenth Plan Working Group Report – p41) that two-thirds of the energy required for ploughing the cultivated area comes from animal power and animal-drawn vehicles haul two-thirds of the rural transport.

16.3 According to a booklet on Livestock and Environment for Sustainable Development, published by CARTMAN, Bangalore, bullocks constitute 88% of the work animals, cows less than 2% and buffaloes only 9%, the latter being kept mainly for milk purposes. Mechanisation of ploughing and use of mechanised transport in rural areas have not reduced the number of draught animals. (However, this situation is fast changing and more and more use of mechanisation in agriculture is shifting the dependence of many farmers on cattle for draught purposes.) It has been estimated that, according to calculations based on the 1982 census, the value of energy obtained annually from draught animal power was of the order of Rs. 90,000 crores and the value of petroleum or oil saved per year was Rs.4,000 crores.

16.4 There are many issues concerning Draught Animal Power, which requires the attention of Government, NGOs and other interest-groups. The first is the fragmentation of the government system handling this important subject. While livestock development, including the issue of development of draught breeds as well as dual purpose breeds, is with the Department of Animal Husbandry, the subject of DAP is with the Department of Non-conventional Energy Sources. This Department has a small budget of Rs.4 crore but adequate attention is not being given to developing proper programmes. There is no coordination between these two Departments with the result that no properly conceived programmes are being developed for utilisation of this invaluable and vast source of energy to meet the growing energy demands of the population. The aspect of cruelty to animals during use as draught animals, heavy loading, beating etc. has also to be looked into and prevented by proper implementation of the Rules under the Prevention of Cruelty to Animals Act, which is administered by the Department of Animal Welfare, now with the Environment and Forests Ministry. This problem needs to be addressed by setting up an independent body for development of Draught Animal Power, which should act as an interface and coordinate the programmes of all the concerned Departments.

17. Self-sufficiency through use of dung and urine of so-called useless cattle

17.1 The Animal Welfare Board of India is giving a special grant of Rs.5 lakhs per year to Adarsha Goshalas for development of programmes for utilisation of cow dung and urine for organic manure, pesticides and medicines. The National Commission on Cattle tried to ascertain the economics of these Goshalas to determine whether or not they could become self-reliant on the basis of the income from cow dung and urine. 9 out of 22 Goshalas responded to the survey and the essence of the responses was that they were hopeful that they would become self-sustaining within the next two year. However, none of them claimed that the sale of organic manure and dung alone or their products has given them enough income to maintain cattle in their Goshalas. It is, therefore, obvious that, while the economic value of the dung and urine of cattle cannot be under-rated, a number of problems ranging from collection and sale of the raw materials to manufacture and marketing of the finished products have to be sorted out for which some form of institutional support would be required.

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RECOMMENDATIONS OF THE COMMITTEE ON ECONOMIC CONTRIBUTION OF CATTLE PRODUCTS AND BY-PRODUCTS

1. One of the main problems encountered in this report is the lack of accurate data regarding the various parameters requiring study. It is, therefore, suggested that:

   - A sound data-base or data-collection system be developed, which would throw up data regarding cattle numbers, numbers of work animals, energy outputs, milk production, dung and urine utilisation, number of bio-gas plants, etc.

2. There has been a lot of research, which is still on-going in many cases, on the various uses of cow products and bi-products. However, in order to draw the benefits from this research in an organised manner and translate the results into positive action on the ground, it is recommended that:

   - An inventory should be drawn up of all research that has been conducted, be it on organic farming and composting, cow urine therapy etc.

3. A plethora of studies and theoretical papers were presented before the Commission but most of them lacked a professional scientific basis. It is obvious that, while there is a general awareness, mostly coming through handing down from one generation to another about the invaluable properties of all products of the cow, right from milk and its products to dung and urine etc., much work is required to be done to document and quantify these benefits in concrete economic scientific terms. The Committee, therefore, recommends, that:

   - A programme for conduct of scientific research into several aspects of the issue should be drawn up, with special attention to the following:

   a) Chemical, microbiological and immunological analysis of milk, dung and urine of various indigenous cattle breeds and the comparison of the results with that obtained from the product of buffaloes.

   b) Chemical and microbiological analysis of fertilisers and pesticides or pest-repellents produced from cattle urine and dung and evaluation of the various parameters of these products vis-s-vis that of chemical fertilisers and pesticides.

   c) Determination of quality control parameters for raw materials such as dung and urine, especially those used in medicines. Parameters such as age, health and physiological status of the cow need to be studied and quality control standards and measures laid down.

   d) Verification of the clinical and medicinal claims in our scriptures and other literature regarding the medicinal properties of various cow products. Pharmacological, microbiological, immunological and toxicological studies need to be made of these remedies. Clinical trials need to be documented.

   e) Research on bio-fertilisers and bio-pesticides made from cow products, to determine their soil and crop specificity. Composition and efficacy of fertiliser obtained from cow horn merits special attention.

f) Influence of cow urine on germination of seeds and plant growth. Presence of plant and human immunostimulant substance in cow's urine needs to be determined and studied.

4. With regard to organic farming, the following suggestions are made:

- Improved methods of composting should be popularised amongst farmers by large-scale training programmes and demonstration through the extension networks.
- NGOs like Goshalas should be involved in this activity.
- Awareness about the efficacy and utility of dung-based manure and compost should be spread far and wide, through the use of the various forms of media, including audio-visual, print and through Krishi Vigyan Kendras and information kiosks at the village level.
- Facilities for certification of organically produced vegetables, grains and other crops should be made available to the farmers, who can obtain a better remuneration for their organically-produced products.
- Marketing and transport of these labelled products should be facilitated.
- If possible, in the initial period at least, subsidies should be given for production of organic produce, rather than subsidising the use of chemical fertilisers and pesticides.

5. It is very important to propagate the use of Cow's milk, for a number of reasons already cited. As long as there is a wide-spread demand for clean and hygienic milk of the cow, to that extent the slaughter of the cow and its progeny can be curbed. The Committee suggests that:

- Cow's milk should be separately labelled and marketed on a large scale, for which labelling should be made mandatory.
- The pricing policy based on fat content of milk, (which favours buffalo milk, leading to an ever-widening preference of the farmer to keep milch buffaloes rather than cows) needs a serious re-look to correct the tilt in favour of the buffalo.
- The benefits of taking cow's milk should be propagated and awareness should be spread through an aggresive media campaign, holding of seminars etc.

6. A major logistics problem is the proper collection or retrieval of dung and urine and their transport to the place where they are to be utilised. The Committee, therefore, suggests that:

- For collection of urine, proper sheds with appropriate channels in the floor need to be set up, for which advice may be given to the farmers.
- Subsidies could be given for construction of special sheds.
- Subsidies could also be given for collection and transportation of the products to the manure or medicine-producing facilities, if they are at a distance from the source.

7. Cow urine therapy is already gaining recognition. The use of Panchgavya for curing a variety of ailments and diseases has already been described. The Committee suggest that:

- Special efforts may be made to popularise the use of Panchagavya treatment, by spreading awareness about its efficacy in curing various diseases.
- Similarly, the efficacy of cow urine therapy, based on properly documented trials and research studies, may be made known to the general public.
- However, while procedures for grant of licences for production of these medicines may be simplified, care needs to be taken to ensure that quacks are not able to take advantage of the simplified procedures, as this would be to the detriment of the patients seeking relief, as has happened in some stray cases.

8. While the Committee is totally against slaughter of cattle for any reason, whatsoever, there are certain parts of the body of the cattle, which can be used after the natural death of the cattle. Horns of cattle can be used for manufacture of an extremely effective manure in the form of Seeng Khad. The Committee, therefore suggest that:

- In the matter of carcass utilisation, the collection of horns and other products like hides and skins from dead cattle should be organised properly.
- New technologies should be used for carcass utilisation, so that the economy can gain from the benefits, bestowed by the benevolent cow, which even gives to mankind after her death. The employment of the rural population engaged in this trade will not be disturbed if this is done.
- Tractorisation needs to be curbed and the use of draught cattle for agricultural purposes as well as for transport needs to be restored, by developing improved ploughing implements and harnesses.
- Special draught breeds of cattle should be developed and improved genetically, so that this valuable source of energy remains available to the farmer, especially the small and marginal farmers.

9. There is a multiplicity of agencies dealing with different aspects of organic farming and use of cattle products and by-products, and also draught animal power. Unfortunately, there is little or no coordination between the various agencies, with the result that there is a lot of overlapping of functions in some areas, and big gaps in other areas, which should be covered. The Committee, therefore, suggests that:

- There should be a nodal body for coordinating with the different Government Departments and other agencies in the matter of organic farming and the utilisation of cattle dung and urine for composting.
- Similarly, there should be a coordinating body for use of draught animal power, which is presently with the Department of Non-conventional Energy Sources, whereas, tractorisation and mechanisation are with the Department of Agriculture and Cooperation and breeding and bullock production are with the Department of Animal Husbandry and Dairying.

10. Goshalas, Gosadans and Panjarapoles were designed and envisaged to play a very important role in the development and betterment of cattle. Unfortunately, due to a variety of reasons, these organisations have, by and large, not been able to live up to the expectations, for which they were set up. Although there are, no doubt, many organisations being run very well and can serve as model Goshalas, these are few and far between. The Committee, therefore, recommends that :

- The roles of Goshalas, Gosadans and Panjarapoles should be enhanced for evolution of better manures, pesticides and medicines.
- These organisastions should be encouraged to become self-sustaining by selling or properly utilising the dung and urine from even dry cattle.
- They should be given grants in the initial stages to develop self-sufficiency by adopting modern methods of collection and usage of these products.
- They should lay down time-bound programmes with firm plans of action to achieve self-sufficiency and these programmes should be closely monitored and subsequent grants with-held if the targets are not achieved. On the other hand, if the targets are achieved within the scheduled times, additional incentives and awards should be given.

11. One of the most important uses of cattle dung and urine is for the generation of an eco-friendly, cost-effective and sustainable alternative fuel for rural cooking and lighting. The Committee feels that:

- Bio-gas generation should be given impetus in a big way.
- Research for production of new and improved cost-effective plants should be encouraged.
- The benefits of using such plants should be explained to farmers with regard to how they can meet their energy needs, at the same time, producing valuable manure in the form of the residual slurry.
- The ecological and environmental aspects of bio-gas generation needs to be studied and quantified. The results of such studies, in terms of the saving of forests, reduction in pollution caused by burning of diesel and other fuels need to be analysed and conveyed to the general populace, especially in the rural areas, to bring home to them the real benefits of saving the cow and its progeny.

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CHAPTER – VI

REPORT OF

COMMITTEE ON GAUSHALA, GOSADAN, PINJARAPOLE, PASTURE LAND AND FODDER DEVELOPMENT

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Shri Bhanwar Lal Kothari	**Convener**
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CHAPTER VI

GAUSHALA, GOSADAN, PINJARAPOLE, PASTURE LAND AND FODDER DEVELOPMENT

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CHAPTER VI

GAUSHALAS, GOSADANS, PINJARAPOLES, PASTURE LAND AND FODDER DEVELOPMENT

(By Shri B.L.Kothari and Dr. Niranjan Mishra)

Gaushalas and Pinjarapoles - Symbols of India's Cultural Heritage

1. The Gaushala movement is synonymous with the protection of cows and cattle wealth of our country. Being practiced for the last five thousand years or so, its origin can be traced in the Vedic period when social customs and rules laid great emphasis on protection, preservation and development of cows for home, and oxen for agriculture-fields. According to Vedic concepts, cows were considered sacrosanct and constituted material and spiritual assets of the people of the country. At that time, possession of herds of cows was the yardstick for measuring economic esteem and prosperity of an individual. Thus **'Shatagu'** was the owner of hundred cows. One who possessed one thousand cows was referred to as **'Sahastragu'** with honour. In Jain Agams and scriptures, the principal disciples of Bhagawan Mahavir have been referred to as having several Gokuls, each Gokul containing 10 thousand cows. 'Rigveda' refers to cow as **'Aghnya'**- or one which must never be killed. 'Yajurveda' states- 'Go matra Na Vidyate' – which means that there is no parallel to the cow in this world. .'Atharva Veda' considers cow as the 'house of prosperity'- **'Dhenu Sadanam rayinam'**. The Rishies (Ascetics) maintained Asharam Gaushalas, with hundreds of milking cows. It was the milk and milk products from these Gaushalas, which helped them to offer hospitality to visitors. Cow being the backbone of rural life and economy in India, care was taken for their well-being and uplift. Grazing areas and grass lands (Gochar Bhumi) were kept reserved in abundance everywhere. People used to donate their lands to Gaushalas on auspicious occasions so that cows may have sufficient land for grazing. Thus the entire culture of ancient India was **'Go-Sanskriti' or Culture based on cow.**

Historical Perspective

2. Even during mediaeval periods, cow and its progeny were protected by the Rulers. During Muslim regime and particularly the Mughal period, right from Humayun to Shahjahan and ShahAlam there was complete ban on the slaughter of cow. For the British, who neither cared for the traditional rural economy and rural crafts nor bothered for the sentiments of people or cultural heritage of this subcontinent, cow was just a cattle, a good source of meat. After Independence, with the impact of the western world and growth of cities and towns, the entire socio-cultural and socio-economic patterns of life got revolutionized solely on the basis of materialistic considerations. The picture started taking a U-turn in the Sixties, when the **'Green revolution'** introduced mechanical and chemical inputs to the agricultural activities. This led to a situation when the only purpose of cow was milk. There also, buffaloe and exotic breeds pushed it back on the pretext of yield and fat percentage. Now, the cow progeny was burden on the farmer.

3. It was in 1946 that the Animal Husbandry Wing of the Indian Council of Agricultural Research recognised the potentiality of the valuable work done by Goshalas & Panjarapoles and recommended a plan to encourage them to be the fountain-heads of milk and draught power in the country. They formulated a plan to constitute State-wise Federations of Goshalas & Panjarapoles.

Post Independence Era

4. On November 19th, 1947 the Government of India appointed a **'Cattle Preservation and Development Committee'** under the chairmanship of Sardar Datar Singh, Vice President of the Indian Council of Agricultural Research. Along with other issues, the Committee also studied as to how agencies like Gaushalas and Cattle Protection Societies and Salvage Centres could be utilised for preserving cattle wealth and for promoting its development.

5. The Committee recommended establishment of 'Gosadans' where 'uneconomic' cattle could be housed cheaply and allowed to die a natural death. In pursuance of this recommendation a scheme for establishment of 160 Gosadans in the country was included in the first Five Year Plan and a sum of Rs. 97.15 lakhs was kept in the budget for the purpose. One Gosadan was designed to house 2000 cattle on a block of land of about 4000 acres. It was estimated that a Gosadan, capable of housing 2000 cattle, would require Rs. 50,000 as non-recurring, and Rs.20,000 per annum as recurring expenditure. The scheme could not achieve the projected targets. Only 17 Gosadans could be started during the plan period. Established in the States of Bihar, UP, Pepsu, Coorg, Bhopal, Kutch, Vindhya Pradesh, Tripura and Saurashtra these Gosadans could have only 5293 cattle against the capacity of 34,000. Lack of funds with the State Governments for meeting their share of expenditure, non-availability of suitable land, absence of legislative measures for the compulsory removal of unproductive cattle from owner's premises, transport difficulties etc. are the reasons generally advanced as to why the 'Gosadan' scheme could not succeed then.

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6. Although the Gosadans established by the Government could not prove to be successful, the Goshalas and Pinjarapoles managed by the community were still running. A report published by the 'Central Council of Gosamvardhan', New Delhi under the heading **'Gaushalas and Pinjarapoles in India'** informs that, during the First Five Year Plan, there were nearly 3,000 Gaushalas and Pinjarapoles spread over the whole country. These institutions maintained over six lakh cattle at an annual cost of Rupees seven crores. It has been realised that, in spite of their draw-backs, these institutions could, with better organisation, very well serve as useful centres for the improvement of cattle and milk production, supplementing Government's efforts in this direction. State-wise number of Gaushalas in 20 States, which responded to a survey conducted by Shri Harbans Singh, Assistant Cattle Utilisation Adviser to the Government of India, indicates that, in 1954, the Gaushala movement was quite strong in Rajasthan, UP, Bihar, Bombay (including present Gujarat and Maharashtra) Madhya Pradesh and Madhya Bharat, as illustrated by the following table

Spread of Gaushalas and Pinjarapoles (1954)

S.No.	Name of State	Number of Gaushalas and Pinjarapoles
01.	Ajmer	13
02.	Assam	05
03.	Bihar	121
04.	Bombay	124
05.	Delhi	08
06.	Hyderabad	19
07.	Kutch	17
08.	Madhy Bharat	48
09.	Madya Pradesh	76
10.	Madras	42
11.	Mysore	02
12.	Orissa	19
13.	PEPSU	27
14.	Punjab	96
15.	Rajasthan	117
16.	Saurashtra	43
17.	Travancore-Cochin	02
18.	Uttar Pradesh	203
19.	Vindhya Pradesh	02
20.	West Bengal	26

7. The Gaushalas had the following objectives:

1. To preserve the Indian cow and progeny and to breed and upgrade them for supplying plenty of unadulterated milk & milk products to the people & distribute the best female calves to the villagers.
2. Prepare best pedigree Indian Bulls & supply to villagers for breeding and upgrading village cows.
3. Production of best healthy bullocks for draught work and preserve male calves for distribution to agriculturists.

8. In pursuance of a statement made in the Lok Sabha on 21st May 1954, the Government of India set up an **'Export Committee on the Prevention of Slaughter of Cattle'** on 10th June 1954 under the Chairmanship of Shri P.N. Nanda, Animal Husbandry Commissioner of the Government of India. Though the main focus of the Committee was to consider the steps for prevention of killing of milch cows, particularly in the cities of Calcutta, Madras and Bombay, it also elaborated upon relevant issues such as Goshalas, Gosadans and fodder etc. Along with other recommendations, this Committee, by way of

interim measures suggested to the Government that self-contained salvage and calf-rearing farms should be set up by the State Governments. Also, that selected Gaushalas and Pinjarapoles should be helped with additional facilities and funds, wherever necessary, to enable them to undertake salvage of dry animals and rearing of calves. It also recommended that a comprehensive organisation be set up in each State for efficiently handling the numerous aspects of developing milk production in rural areas.

9. The **'Central Council of Gosamvardhan',** as an organisation concerned with the preservation and development of cattle in the country interested itself in the study of the progress made in the implementation of the recommendations made by the **'Expert Committee on the Prevention of Slaughter of Cattle'** in India (Nanda Committee) with particular reference to the prevention of depletion of stock of high-yielding strains of cattle from the breeding tracts and salvage of cows, when they go dry, in cities like Calcutta. The subject came up for discussion at the 30th meeting of its Executive Committee held in New Delhi on the 4th September, 1961 when the Council came to the conclusion that the problem was a colossal one and called for detailed examination by a special high-powered committee for suggesting comprehensive proposals on long-term and short-term measures for solving the problem. The President of the Central Council of Gosamvardhan Shri U.N. Dhebar was authorised to constitute the Special Committee and define its terms of reference. Accordingly, a special high-powered Committee was appointed under the Chairmanship of Shri Shriman Narayan, Member (Agriculture), Planning Commission. The Committee was of the view that various schemes drawn up by the States for the preservation and improvement of cattle should receive a high priority and necessary funds for their implementation should be allocated in the States' Annual Plans.

Status position of Gaushalas

A. Questionnaire -Responses

10. To have first-hand knowledge about various issues relating to Gaushalas, Gosadans and Pinjarapoles such as availability of fodder, land and water, financial assistance, veterinary facilities, economic viability of their projects based on cow dung and urine and mechanism of governmental assistance etc. a detailed questionnaire - **Annex VI (1)** - was sent to 1797 Gaushalas, Gosadans and Pinjarapoles scattered throughout the country. 496 or 28% of them responded. As was expected, the maximum numbers of responses were from Rajasthan, U.P., Madhya Pradesh, Gujarat, Haryana, Bihar and Uttaranchal, where the Gaushala movement has been very strong traditionally. State-wise names of Goshalas and figures for the questionnaires sent and responses received from different States are placed at **Annexes VI (2)** and **VI (3)**, respectively. Position of the issue-wise responses is given in the statement- 'Question-wise Break up of Responses' at **Annex VI (4).**

11. On the question of provision of allotment of land for Gaushalas / Gosadans by the State Governments or local bodies, it is seen that 66.3% of the respondents affirmed that they had been given land. As far as the issue relating to financial aid is concerned, 54.4% Goshalas confirmed receiving such aid. However, a majority of them mentioned that the Animal Welfare Board of India and Go-Seva Ayogs were the main sources for such assistance. Financial assistance directly from the State governments is minimal. The same is the situation in regard to provision of financial aid for buildings (cow shed, office, godown,

veterinary unit etc.). 42.7% institutions, which got funds for this purpose, conveyed that the assistance was received from Animal Welfare Board of India or Institutional/Individual donors. Regarding special provision for veterinary aid to Goshalas / Gosadans from the State Veterinary Departments, 57% respondents conveyed dissatisfaction. The picture about fodder arrangements is very dismal. Three-fourths of the Gaushalas who responded (75.1%) have confirmed that there is no system of keeping fodder reserves in their States to meet exigencies. The situation is not good in regard to supply of water also. When asked whether there is any provision of water supply to Goshalas / Gosadans at concessional rates, two-third (66.7%) of the Respondents answered with an emphatic 'No'. 52.6% Respondents indicated that there are legal provisions applicable by way of Acts and Rules to check the movement of cow and its progeny en-route to slaughter houses in their respective States.

12. About half (49.1%) of the responding Goshalas / Gosadans mentioned that the cattle rescued from the slaughterhouses by the district administration are placed in local Goshala / Gosadans. There is also a system of grant-in-aid, though the amount is meager, from the State Government for maintenance of such cattle. Dissatisfaction is quite apparent on the issue of breed improvement. 46.5% Goshalas informed that there is no assistance, of any type, from the State government in regard to availability of bulls of good indigenous breeds. A good majority, almost three out of every four responding Goshala / Gosadans (71.7%), conveyed that their respective State Governments have a system of providing relief to cow and its progeny in the areas affected by natural calamities such as drought and floods. The relief, in most of the cases, is in form of fodder supply, shelter, grants-in-aid, veterinary care and assistance in shifting the cattle to safer places. Response was mixed on the issue of sufficient facilities for veterinary cover in the times of emergencies, such as epidemics in the cattle folk. While 52.2% respondents confirmed such arrangements, 47.3% were of the view that their respective State Governments did not have any special arrangement in terms of man and material to deal with such emergent situations.

13. Responses on the method and extent of the use of cow dung and cow urine were quite revealing. Even now, almost 9 out of every 10 Gaushalas are running in the same traditional way i.e. as charitable institutions concentrating only on protection of cow, and not giving any thought on harnessing the vast resources available with them in the form of cow dung and cow urine. Only at a few places, these resources are being utilized for producing bio-fertilizers, bio-pesticides, bio-energy and bio-medicine (panch-gavya medicines). Only 7.8% responding Gaushalas are using their cow dung to prepare Nadep Compost, while, in spite of all encouragement from Khadi and Village Industries Commission, Animal Welfare Board of India and the District Rural Development Agencies, less than 10% Gaushalas have bio-gas plants. However, about 70% respondents are of the view that the Bio-gas plant be recognised as a village industry, wherein the slurry and methane gas are the outputs. The situation is still worse in the case of use of cow urine for preparing bio-pesticides. Only 3.3% of the Gaushalas are trying this. As far as preparation of Panch-gavya medicines is concerned, only 2.4% of the responding Gaushalas are in the fray.

B. Public hearings

14. Almost the same situation came to light in the course of the public hearings held in different States. Shri Chandra Raj Mehta, who participated in the public hearing at Pali (Rajasthan) on 9.2.2002, was of the view that the State Government should provide electricity and water to Gaushalas at concessional rates. Shri Narain Singh, in the same public hearing,

proposed that the lands, which are purchased by Gaushalas for developing into grassland, should be free from the stamp duty. Dr. Vireshau Prasad Singh, while speaking in the public hearing held at Patna (Bihar) on 28.02.2002, opposed the system followed by the Bihar Government, in which the land ceiling laws are applicable to Gaushalas also. Because of this, the Gaushalas are finding it difficult to sustain their fodder supply. It was a revealing fact, submitted by Dr. Dharmendra Singh, General Secretary, Association of Veterinary Doctors of Bihar in the same meeting, that only 0.4 percent of the State budget is earmarked for the health of Animals. He informed that in a State like Bihar where agriculture holdings are very small, the bullock is the main companion of farmers.

15. In the public hearing held on 23.1.2002 at Baroda (Gujarat), Mr. Mahesh Pandya, representing an NGO, asserted that the limit of grazing land should be increased. It is the same i.e. 40 acre land for every 100 Cattle, for many decades in the State of Gujarat. Representative of a Public Trust, Meenadham Pinjarapole, submitted a surprising fact. He informed that the work in the premises of the Gaushala for construction of sheds, godowns etc. has been treated as the non-agricultural use of the land and accordingly high conversion fees have been charged. He was of the view that the Pinjarapoles should be given some grant-in-aid as these institutions have to take care of Cattle put in the there by Municipality authorities. The revenue development officer informed that the Gujarat State Ceiling Act of 1976 has reduced the limit of land for Gaushalas. Of course, it was quite consoling that, in Gujarat, a separate Ministry has been established with a view to concentrate on preservation and development of cattle. They have some encouraging schemes for promotion of bio-fertilizers. In the public hearing of Ahmedabad on 22.01.2002, the Forest Officer expressed concern over lack of any 'grazing policy'.

16. Most of the participants in the public hearing held at Mumbai (Maharashtra) on 16.1.2002 laid emphasis on the availability of grazing lands as the first and foremost necessity of Gaushalas. They expressed concern for the growing tendency of unauthorized occupation of 'charagahs'. Because of this, observed Advocate Shri R.K. Joshi, the percentage of grazing land has come down from 10-12 to 2 only in the State of Maharashtra. Shri Prakash Chandra B. Kochar of Hingan Ghat Gorakshan Sanstha, while participating in the Commission's public hearing at Nagpur on 18.1.2002 said that the large-scale trespassing on pasturelands has caused a serious threat to the cattle folk. However, farmers were quite enthusiastic about the use of bio-fertilizers and bio-pesticides in 'Vidarbha' Region, it was revealed during the discussions. Dr. Suresh Dorle from Deolapar informed that some 2600 farmers had switched to organic farming. The cost of organic manure was Rs.300 to 400 per acre, as against Rs.2000 per acre for chemical fertilizers.

17. Shri Narsingh Das Goel of Vidisha, who participated in the public hearing at Bhopal, informed that in Madhya Pradesh also, like other parts of the country, the area of 'gochar' land has reduced. Earlier, it was 5%, but now the percentage has come down to 2%. He stated that in spite of the fact that the Gaushalas are taking care of quite a good number of cattle, the employees of the Veterinary Department have no consideration for that. During the course of discussions, it was revealed that, in some parts of the State, people are becoming aware about the scientific use of cow dung and cow urine. What is needed is the technical and infrastructural support from the governmental agencies. It was encouraging to note that the District Administration of Jabalpur was preparing a project for electricity generation using cow dung as basic material for harnessing methane gas. The Commission was informed that the Project may be funded by the Japanese Government.

C. Study Project

18. Since the advancement of the concept of organic farming, the Gaushalas are entering a new phase. Now there is awareness among them that they have lot of potential in terms of bio-fertilizers, bio-pesticides, bio-energy and panch-gavya medicines. They have also started thinking in this direction. Most of them are convinced that if this potential is harnessed, the Gaushalas can be economically viable units. They can get rid of the long practice of donations. The old and infirm cattle will no longer be a burden on them. In spite of all such ideas reaching them, most of the existing 4000 Gaushalas are still the same as they used to be two decades ago. It is mainly because of lack of technical know-how and marketing infrastructure. The status position of Gaushalas & Panjarapoles is well reflected in the findings of a study conducted by the National Institute of Rural Development (NIRD) Hyderabad on behalf of Animal Welfare Board of India. The study project was taken up with the following two major objectives:

1) To suggest managerial interventions required to minimise costs, and
2) To identify thrust areas of action points to make Gaushalas-Pinjarapoles relatively more self-reliant.

19. In the light of findings of the study, the status position of Gaushalas is summarised here under :

1) It is observed that no working arrangement exists in between Gaushalas-Pinjarapoles and local State Government officials in charge of Animal Husbandry and Dairying.

2) Mostly the Gosadans, Gaushalas and Panjarapoles are running as charity institutions managed by local people in a traditional way. Almost all of them are suffering from financial constraints.

3) Manpower is inadequate. By and large the workers are engaged either on adhoc or temporary basis on daily wages, and are not covered by the labour laws of the respective States. They are very low paid, get less than those labourers placed in other organisations of the same area.

4) Gosadans and Panjarapoles are being looked after by people who have no technical know-how or expertise or training exposure for upkeep of animals.

5) Due to low literacy among workers and lack of understanding about the imperative need to adopt modern technological practices among the members of the Executive Bodies in charge of Pinjarapoles innovative modern technology practices have not yet been adopted to improve the economic utility of the livestock.

6) By and large, the Gosadans do not have any permanent pasturelands. As the village charagahas are under unauthorised occupations, the cattle do not have any access to those also. Generally dry fodder is managed through donations, which is totally insufficient.

7) Over-all picture of these institutions is still the same old one, not only in look but also in outlook. They have not adopted scientific methods as far as collection and processing of cow dung and urine are concerned. The dung is mostly dumped in heaps in the premises of gosadan. This is a major hygienic problem, particularly during rainy season affecting the health of both- cattle as well as workers.

8) Some Gosadans have started preparing Nadep Compost, Vermi Compost, Bio-pesticides and Bio-energy but their efforts lack scientific back-up, with the result that none of them have been able to create a market for their products.

9) There is a no proper veterinary cover for the cattle being reared in these institutions.

10) Except the provision of allotment of land, and that too is subject to availability, there is no other support from the State for initial establishment, development and maintenance of Gaushalas. Even the water and electricity are provided to these institutions on normal rates and no concession is permitted.

11) The only financial assistance given to Gaushalas is for maintenance of the cattle entrusted to them by police after rescue operations. But the amount is meagre, ranging from 3 to 10 rupees per cattle per day and only for a definite period.

12) There is no definite system or scheme in any state for providing relief to Gaushalas in terms of fodder supply, feed supply, shelter, veterinary assistance, grant-in-aid in the areas affected by natural calamities such as drought and floods.

13) In spite of the fact that the Gaushalas have traditionally been breeding centres and the sources of bulls, the Animal Husbandry Departments in most of States do not have any mechanism to provide training to Gaushala workers.

14) Disappearance of grazing lands, rising cost of fodder and ' no support' attitude of the community and the State have made these institutions as 'begging institutions'.

15) Gaushala-Pinjarapole authorities are not taking proper advantage of on-going State-sponsored Schemes under rural development, animal husbandry, waste-land, social forestry sectors for infrastructure development of the Gaushala-Pinjarapoles.

16) It is observed that the present level of Government assistance to Gaushalas-Pinjarapoles is totally inadequate. Since these institutions are serving a noble cause, steps should be taken to increase the financial assistance to these organisations.

20. Strengthening of Gaushalas – Recommendations for

1) The main drawbacks of Gaushalas are the paucity of funds, unskilled workers and traditional outlook. To make them self-sustaining units, they have to be motivated to make the best use of their so far under-utilized resources viz cow dung and cow urine.

2) At least one Gaushala in each District may be got developed into a **'Krishi-Govigyan Anusandhan Kendra'** with demonstration units to show the making of Nadep

Compost, Vermi-compost, bio-pesticides and bio-energy. It will function as a catalytic agent not only for other Gaushalas but also for individual farmers. Infrastructure and trained personnel for these Kendras should be arranged by Animal Husbandry and Agriculture Departments of the concerned State.

3) At Division Headquarters or for a cluster of Districts, there may be a Laboratory and Documentation Centre. The bio-fertilizers and bio-pesticides prepared at 'Krishi Go-Vigyan Anusandhan Kendras' may be tested and documented in these laboratories with a view to add to their effectiveness in the crops and reduce input-cost.

4) As the 'Krishi Go-Vigyan Anusandhan Kendras' and Laboratories will be mainly for the benefit of rural areas, a suitable fraction of the Krishi Mandi Tax may be diverted to maintain them. In U.P. such an arrangement has been made.

5) The Gaushalas may get their workers trained at the 'Krishi Go-vigyuan Anusandhan Kendras'.

6) The State Government concerned should provide water and electricity to Gaushalas and Pinjarapoles at concessional rates.

7) The Animal Husbandry Department of the State should ensure that complete veterinary cover is provided to Gaushalas and Pinjarapoles.

8) Livestock Extension is presently a part of Agriculture Extension. But livestock extension, which is primarily based on providing services and goods, needs to be treated differently from crop related extension activities, which are based on transfer of knowledge. While in crops, the assumption is transfer of knowledge from laboratory to the farmer through an extension medium, in animal sciences the knowledge transfer is the least, while the services (like treatment of sick animals, artificial insemination, deworming etc) made available are the main platform for action. A well-equipped and far-reaching extension service should be independently organised by the Animal Husbandry Department, as this would be highly beneficial for the Gaushalas, Gosadans and Pinjarapoles.

9) The Central and the State Governments should have some mechanism of providing financial assistance to Gaushalas and Pinjarapoles for developing necessary infrastructure. Funds for this purpose may be raised by way of cess on the export of leather and leather goods, which is to the tune of about Rs.17,000 crores per annum. Needless to mention, this earning is mainly from cattle but not even a minute fraction of it goes back for improvement of livestock so that quality skins and hides are produced.

10) Scheme of working capital loan may be introduced for Gaushalas, Gausadans and Pinjarapoles. Such provision will help these institutions to avoid always rushing to donors for further financial help. The State Government can create a venture capital fund for this purpose in collaboration with NABARD.

11) Introduction of Gaushala Credit Card (like Kisan Credit Card) may also help solve the problem of working capital. Under this scheme, Gaushalas will get credit against their future production of milk, bio-fertilizer, bio-pesticide and panchgavya medicine etc. and they will be free to purchase the inputs at a competitive price from their selected shops. The cards will be issued by the competent authority on the basis of production value of a particular Gaushala.

12) The State Government should come out with a margin money scheme on the lines of KVIC's Margin Money Scheme where entrepreneurs are required to contribute only a sum equal to 5% or 10% of the cost of the Project from their own sources. Alternatively, a soft loan scheme can be introduced.

13) Contributions for running of Gaushalas such as Lag, Biti, Katauti and Dharmada etc. should be legalised and their collection be regulated for utilisation in the improvement of Gaushalas and Pinjarapoles.

14) Donations made to the registered Krishi Govigyan Anusandhan Kendras be made completely Tax free under section 35 AC of Income Tax.

15) For good working arrangement between Gaushalas-Pinjarapoles and the State Governments, a cell should be created in the Department of Animal Husbandry under a competent authority.

16) It is suggested that the State Government may consider organising annual meetings at State-level in which the persons-in-charge of all the Gaushalas-Pinjarapoles and concerned State Government functionaries dealing with RD, AH and other Departments meet to discuss problems of common interest and to take steps and other policy decisions for improvement and maintenance of Gaushalas-Pinjarapoles with possible assistance from State Sponsored Schemes. Through such meetings, the Gaushalas-Pinjarapoles can take definite advantage in furtherance of the development of these organisations.

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17) As outlook of most of the persons engaged in the affairs of Gaushalas and Pinjarapoles is still very old and traditional, an intensive training programme is required to be undertaken so that they can understand the economic prospects of their own resources in the form of cow dung and cow urine.

21. Recommendation with regard to R& D and Awareness creation

1) It is now an accepted fact that the chemical fertilizers and pesticides not only have adverse effects on soil but also are harmful for human health. Even the agriculture scientists agree with the view that regular use of chemical fertilizers leads to a situation when land ultimately becomes unproductive and barren because of destruction of microbes. On the other hand, organic manure provides most of the plant nutrients. The microbes are encouraged. Texture of the soil improves. It becomes porous with more aeration. Humus elements increase at a faster rate. Resistance power of the soil to fight fungus, pests and insects etc. increases. This all adds to the fertility of the soil. In this background, it is high time that the Indian Council of Agricultural Research concentrates on research on cow-dung and cow-

urine as the basic components of bio-fertilizers and bio-pesticides. It is the forum where proper research can be conducted for improvement in effectiveness and cost factor of bio-fertilizers and pesticides as compared to chemical ones. The findings can be percolated down to the universities, colleges and schools. Awareness can be created amongst the masses through All India Radio, Door Darshan and other media of mass communication.

2) Keeping in view the times ahead, the Animal Science Education must be the major focus in the school level curriculum. ICAR should take up this matter with concerned organisations, such as Central Board of Secondary Education and NCERT and emphasize the importance of introducing this subject from grade VI to XII of our formal education system. Likewise, the Board of Secondary Education working in different States can introduce the subject in their own syllabi.

3) Agriculture Universities and Veterinary Colleges should have separate units on organic farming with specific reference to potentials of cow-progeny. This can also be made as part of syllabus at the undergraduate level.

4) Veterinary colleges should start vocational training courses varying from one to two years on a regular basis to train technicians, who can work in Krishi Go-vigyan Anusandhan Kendras, Gaushalas, Gosadans and Pinjarapoles.

5) The Universities should have proper linkage with 'Krishi Go-vigyan Anusandhan Kendras' and Divisional Laboratories located in their jurisdiction. Experiments relating to applicability of bio-fertilizers and bio-pesticides should be got conducted in the extension wings of universities.

6) As the Panch-gavya, particularly cow-urine has many medicinal properties, the Ayurvedic Universities and Colleges should conduct research thereon. Otherwise also, this is covered in the scope of Ayurveda. Such research will provide guidance to many Gaushalas and 'Krishi Go-vigyan Anusandhan Kendras' where work has already been started in this direction.

7) Utmost attention should be paid to the documentation of the findings of various researches relating to cow science. Done in written, audio and video formats, such documentation will provide the base for proving its genuineness and recognition.

8) As also proposed by the Working Group on Animal Husbandry and Dairying for the 10th Five Year Plan, development of marketing network and remunerative price support to the producers will be a great incentive for higher animal productivity both in quality and quantity. Creation of a permanent institution in the line of Commission on Agricultural Costs and Prices (CACP) should be initiated, which will estimate the cost of production of various livestock products and suggest remunerative prices, so that farmers are not exploited.

Feed & Fodder for Cattle

22. The importance of feed and fodder for cattle rearing hardly needs to be emphasized. in its Mid-Term Appraisal of the Ninth Five Year Plan, the Planning Commission observed that 'Attention is needed for cultivations of fodder crops and fodder trees to improve animal nutrition. The area under permanent pasture and grazing land has been estimated at 11.06 million ha. However, actual availability appears to be much less. An integrated approach for regeneration of the grazing lands need to be evolved'.

23. Right from ancient times, a 'charagah' or **'Gochar bhumi'** was an essential part of the land management. Sufficient land was invariably kept reserved, in which the village cattle could graze and move around. Even today, vast areas of land exist under the head of 'Gochar bhumi', though large parts of it are under unauthorized occupation. Disappearance of Charagah lands as been the major cause of making cattle-rearing a burdensome activity. The situation compels the farmers to drive out their cattle, which ultimately are pushed towards the slaughter-houses.

24. What caused squeezing or disappearance of grazing lands from the village landscape? Analysis of this reveals, in fact, the history of the changing land-use pattern during the last five decades. It informs us as to how the crop-culture, increasing irrigation, temptation for commercial crops, intensive agriculture, export value of products (like oilseeds and oilcakes) and expansion of human settlements and infrastructure thereon resulted increasing the pressure on land, at the cost of pastures and grazing lands. Traditionally the ' gochar-bhumi' used to be in the close vicinity of villages. With the growing of villages, the 'Charagah lands' started thinning. Unauthorized occupation has been the most serious menace, which affected the traditional animal grazing practice in the worst possible manner. Land reforms and Land Ceiling Acts affected pasture lands in various States from time to time, and under the pressure of demand for land, these laws could not help much in resisting the continuous decrease of pasturelands. As compared to growing cattle population, shrinking of grazing land during the last four decades is evident from the data for classified land-use in the period 1951 to 1992.

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Cattle Population 1951 to 1992

	1951	1956	1961	1966	1972	1977	1982	1987	1992
1.Cattle	155.30	158.70	175.60	176.20	178.20	180.00	192.45	199.69	204.58
2. Cow*	54040	47.30	51.00	51.80	53.40	54.60	59.21	62.07	64.34

* Adult Female Cattle

Growth Pattern of Cattle population 1951-1992

	1951-56	1956-61	1961-66	1966-72	1972-77	1977-82	1982-87	1987-92
Cattle	0.43	2.04	0.07	0.24	0.19	1.35	0.74	0.48
Cow	-2.76	1.52	0.31	0.61	0.45	1.63	0.95	0.73

Extract: Land use classification - A

(1000 hectares)

Year	Area under non-agriculture use	Barren and unculturable land	Permanent pastures and grazing land	Culturable waste land	Total cropped area	Total gross irrigated area	Fodder crop Jowar
	1	22	3	4	5	6	7
1950-51	9357	38160	6675	22943	131893	22583	15554
1960-61	14840	35911	13966	19212	152772	27980	18426
1970-71	16478	28161	13261	17500	165791	38195	16871
1980-81	19656	19962	11974	16744	172630	49775	16812
1990-91	21087	19389	11404	14995	185742	63204	14158
1992-93	21771	19122	11095	14588	185609	66762	13222

Source: Indian Agricultural Statistics 1992-93

Extract: Land use classification - B

(1000 hectares)

Year	Fodder crop Bajra	Other millets	Foodgrain wheat	Total pulses	Total foodgrain crops	Total condiments and spices	Total fruit vegetables
	8	9	10	11	12	13	14
1950-51	9744	5576	10010	20554	101196	1244	2249
1960-61	11470	4997	12931	23665	115564	1569	2649
1970-71	13391	4962	18293	23126	124910	1864	3683
1980-81	11658	4033	22225	22708	127608	2065	4924
1990-91	10735	2372	24046	24884	127948	2325	6692
1992-93	10856	2017	24641	23561	125207	2721	7013

Source: Indian Agricultural Statistics 1992-93

25. In the year 1951, the total number of cattle in the country was 155.30 million, which rose to 204.58 million in 1992, registering a growth of 32.2%. The rate of growth was highest during the period 1956-6, when it marked 2.04%. Out of the total number added to the cattle population during the last

four decades, the number of cows (adult female cattle) was about 10 million. As compared to growth in cattle population, the sources of feed and fodder and pasture lands have decreased. Jowar, Bajra and other millets have traditionally been the main sources of straw (Kadbi) used as dry fodder for cattle. Areas for all types of fodder crops have decreased during the period 1950-51 to 1992-93. Jawar was grown on 15,554,000 hectares of land in 1950-51 while its area in 1992-93 was 13,222,00 ha. Land used for the crop Bajra, which was 11.4 million ha in 1960-61 and 13.39 ha in 1970-71, came down to 10.8 million ha in 1992-93. In the case of other millet crops, the area got reduced to less than half i.e. from 5.5 million ha in 1950-51 to 2.0 million ha in 1992-93. The same trend is visible in the case of permanent pastures and grazing land, which measured 13.9 million ha in 1960-61 but the area decreased to 11.09 million ha in 1992-93. This is as per the records and the actual pastureland available on the ground may be far less. Likewise, culturable wastelands, which are sometimes used for livestock, have also shrunken, as illustrated by the figures.

26. On the other hand, areas devoted to food-grains (wheat), pulses, fruits and vegetables, and for non-agricultural uses, have increased. The fastest growth is visible in the case of area under non-agricultural use, which rose from 9.3 million ha to 21.7 million ha. Greater part of grazing land has been grabbed by it only, as the land put under non-agricultural use is, in most of the cases, adjoining the human settlements.

27. Total cropped area has gone up by 50%, while gross irrigated areas has registered a marked growth of about 300% during the last four decades. In 1950-51, the total cropped area of the country was 131.8 million ha which rose to 188.15 million ha in 1994-95. In the same duration, the total gross irrigated area increased from 22.5 million ha to 70.64 million ha. Likewise, the area for wheat has gone up by about 250% i.e. 10 million ha in 1950-51 to 24.6 million ha in 1992-93. Changing crop pattern has also encouraged cash crops like fruits, vegetables and spices. Thus the area occupied by fruits and vegetable rose from 2.2 million ha in 1950-51 to 7 million ha in 1992-93. In case of condiments and spices, the crop area became more than double, from 1.2 million ha to 2.7 million ha in this duration. Growth has been registered in case of pulses also. Cropping intensity (obtained by dividing the gross) cropped area by the net area sown) has also increased from 111.07 million ha in 1950-51 to 131.70 million ha in 1994-95. Contrary to this growth, in areas under various crops, the fallow land has decreased from 28.12 million ha in 1950-51 to 23.30 million ha in 1994-95. This all is indicative of the fact that crop area and non-agriculture use of land have increased at the cost of pastures, grazing and fallow land.

28. It would be worthwhile to have a look at the State-wise number of cattle vis-a-vis the area under fodder crops and permanent pastures and other grazing lands, as given in the table given below.

Statewise number of cattle, Area under Fodder Crops, Pastures and Grazing lands

(000 hectares)

(In thousands)

S.No.	State/UTs	Cattle population (1992)	Fodder Crops (1994-95)	Pasture and grazing land (1994-95)
01.	Andhra Pradesh	10946	156	763
02.	Assam	10118	12	163
03.	Bihar	22154	16	116
04.	Goa	98	-	1
05.	Gujarat	6804	1239	848
06.	Haryana	2136	568	27
07.	Himachal Pradesh	2165	1	1198
08.	Jammu & Kashmir	3055	41	126
09.	Karnataka	13173	71	1048
10.	Kerela	3524	2	1
11.	Madhya Pradesh	28688	789	2695
12.	Maharashtra	17446	1138	1359
13.	Manipur	719	-	1
14.	Mizoram	59	-	4
15.	Orrisa	13841	-	635
16.	Punjab	2909	780	9
17.	Rajasthan	11699	2909	1751
18.	Sikkim	198	(a)	69
19.	Tamil Nadu	9278	184	124
20.	Uttar Pradesh	25635	1011	301
21.	West Bengal	17453	3	6
22.	A&N Islands	50	(a)	5
23.	Chandigarh	5	2	–
24.	Dadra & N.Haveli	49	2	1
25.	Daman & Diu	8	-	(a)
26.	Delhi	41	1	(a)
27.	Lakshadweep	2	(a)	-
28.	Pondicherry	90	(a)	(a)
	All India	**204584**	**8925**	**11235**

(a) Below 500 hectares

29. The table reflects that the States having large number of Cattle have either good fodder crops or sizable permanent pasture and grazing land. Only Assam, Bihar, Tamil Nadu and West Bengal are exceptions to this. Except Assam, all these States are heavily populated and as a result, agriculture becomes more and more intensive day by day and, simultaneously, the grazing lands are brought under the plough. It is not a mere coincidence that the States having more area under fodder crops such as Rajasthan, U.P., M.P., Gujarat, Haryana and Maharashtra have also been very active in the Gaushala movement. However, the status position of grazing lands in most of the States is very discouraging. During the public hearings and meetings with government officials held in different States, it was revealed that, out of the total and area of the State, the grazing land was only 3% in Maharashtra, 4.2% in Karnataka, 4.9% in Rajasthan, 0.9% in Tamil Nadu, 0.1% in Punjab, 3.2% in Uttaranchal, 4% in Madhya Pradesh and only 0.09% in West Bengal..

Carrying Capacity and Potentials

30. It has been argued in more than one forum that the present size of Cattle population is beyond the carrying capacity of the country. Rearing of dry cows or old and infirm oxen will tend to affect the good and useful cattle, as the feed and fodder is inadequate to take care of the total number. Reports of the "Cattle Preservation and Development Committee" **(Datar Singh Committee),** "Expert Committee on the Prevention of Slaughter of Cattle in India" **(P.N. Nanda Committee)**, Special Committee on Preserving High-Yielding Cattle" **(Shriman Narayan Committee)** and all other reports on this issue have highlighted this point. The judgement of Hon'ble Supreme Court of India dated 23.4.1958 in the case Mohd. Hanif Quareshi and others Vs the State of Bihar and others, also gave weightage to this viewpoint. In this background, first, it is desirable to analyze the existing capacity and potential of land to sustain the livestock.

31. As there is no exact mathematical correlation between the grazing areas or sources of fodder and consumption levels of various animals, and also as a complete, correct and up-to-date database is not available about production and consumption of feed and fodder for areas of different climatic and geographical conditions, it is difficult to calculate the exact carrying capacity. However, a fairly good picture can be arrived at after having taken into consideration the main sources of fodder, such as permanent pastures and grazing lands, land under various fodder crops, land under tree crops and groves and forest lands. It is estimated that 75% to 80% of the forest area is open to grazing. All these resources are able to meet the forage requirements of the grazing animals only during the monsoon season. But for the remaining periods of the year, the animals have to be maintained on the crop residues or straws of jowar, bajra, ragi, wheat, barly, etc. either in the form of whole straw or "bhusa", supplemented with some green fodder, or as sole feed. The crop residues are available mainly from wheat, paddy, bajra, jowar, ragi, sugarcane trash, etc.

32. It is worth mentioning that, out of 329 million hectares total land mass of India, 142.82 million hectares or 46.8% is sown area. Percentage for other types of land use are as under:

Forests - 22.4%
Permanent pastures & grazing lands - 3.7%
Area under the tree crops and groves - 1.2%
Culturable waste - 4.7%
Fallow lands - 7.6%
Barren & Unculturable land - 6.2%
(Source: Land use classification 94-95)

33. The most crucial part of the analysis is to decide the fodder consumption levels of each category of livestock and the production level of each category of fodder-source. On the basis of fodder consumption, the forest department of Rajasthan, while preparing its action plan for the period 1996-2016, has done computation of livestock in terms of cow unit by adopting the following conversion factors.

Computation Factors

S.No.	Animal	Cow Units
01.	1 Camel	4
02.	1 Buffalo	2
03.	1 Horse/Pony/Donkey/Mule	1
04.	1 Sheep/Goat	0.25

34. On this scale, the total livestock population can be converted into cow units as under :

Livestock	Number as per 1992 census (1000 nos.)	Converted into cow units (1000 nos.)
Cattle	204,584	204,584
Buffaloes	84,206	164,412
Sheep	50,783	12, 695
Goat	115, 279	28, 819
Horses & Ponies	817	817
Mules	193	193
Donkey	967	967
Camels	1,031	4,124
Total	**470,860**	**416,611**

35. Thus the country is required to feed 416 million cow units, taking caring of her total livestock population. Assuming an average daily consumption of 5 kg per cow unit of dry fodder, it amounts to 1825 kg or say 1.8 tons total fodder utilisation per cow unit per annum. On an average, the ratio between the green fodder produced from forest and its dried form is 3:1. In other words, 12 tons of forest green fodder amounts to 4 tons of dry fodder. The Central Arid Zone Research Institute (CAZRI) Jodhpur, has estimated that the production varies from 2.5 tonnes to over 10 tonnes per ha of green fodder under different production

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systems. In well-managed pastures, the production of over 20 tonnes of green fodder has been achieved. However, considering the fact that most of the forest areas are badly degraded, the conservative estimation of average withdrawal of fodder biomass from forest areas, excluding core areas of PAN, is about 4 tonnes per ha. It may be noted that these estimates of Cazri are specifically for the forests of Arid Zone. In other parts of the country it may be more, ranging in between 4 to 5 tonnes per annum. However, with a very conservative estimate, the carrying capacity of pasture lands can be taken as 2 cow units per ha. In scanty open grasslands, within the forests, it may be approximately one cow unit per ha.

36. The main production-bulk of the fodder crops such as Jowar, Bajara, maize, chari, Ragi etc. is constituted by the fodder, generally 6-7 times more than the grain, in terms of weight. In case of food-grains such as wheat, barley etc., it is lighter, weighing to 2.5 to 3 times of the grain. Of course, both the categories of cropped area provide fodder to cattle. In fact, in non-monsoon months these are the main sources of fodder. Taking all averages into consideration, the carrying capacity of the land under fodder crops may be taken, even with a conservative estimate, to 3 cow units per ha, while for the lands under wheat, barley etc. it would be 1 cow unit per ha. In the light of these parameters, the existing carrying capacity can be calculated as under:

Cattle Carrying Capacity - All India
A- Existing Capacity

Landuse classification	Total land (Million Ha)	Carrying Capacity (Cow unit/per ha)	Number of cow units sustained (In million)
i) Permanent pastures and grazing lands (1994-5)	11.24	2	22.48
ii) Land under tree crops and groves (1994-5)	3.6	1	3.60
iii) Land under fodder crops such as Jowar, Bajra, etc. (1992-3)	26.08	3	78.24
iv) Forest land suitable for grazing (excluding 25% core area)	49.80	1	49.80
v) Land under food grain crops-wheat, barely, paddy etc. (1992-3)	125.20	1/2	62.50
Total			**216.62**

37. As is revealed from the table, the existing fodder resources of the country can sustain 216.62 million out of the total 416 million cow-units. In other words, existing fodder resources can meet 51.92% of the total requirements to sustain its livestock population. Keeping in view that the animals such as horses, ponies, mules, donkies, camels, sheep and goats etc. subsist on different types of feed and fodder, if the aforesaid fodder resources

are accounted for only to cattle i.e. cow progeny and buffaloes, this percentage will increase to 58.53%.

38. While calculating the carrying capacity, generally the areas providing fodder are taken into consideration. In other words, things are looked upon as they are, and not as they can be or ought to be. To be more specific, we are also supposed to take into consideration the fodder potential, which is yet to be explored. We have vast culturable waste-lands, which, with some efforts, can be developed into good pasturelands. Major part of the fallow land can be put under the plough for having fodder crops such as Jowar, Bajra and smaller millets. Likewise, the non-forest land covering more than two million hectares of land can be managed for developing grazing lands. The barren and unculturable land, which, apparently, is taken as totally useless, can also be looked upon. Suitable patches in such lands can be identified and developed with some interventions like application of cow dung for plantation of fodder trees. All these areas combined together, present a big potential for future fodder production, as is mentioned under:

B - Potential fodder areas for the future
(million ha)

Culturable wastelands (1994-95)	14.21
Fallowlands (1994-95)	23.30
Non-forest forest land (1997)	02.59
Barren and unculturable land (1994-95)	18.77
Total	**58.87**

39. The combined area of all these categories of land is 58.87 million ha. Culturable wastelands and non-forest forest lands can be taken up and developed by the Panchayati Raj institutions in phases, as the District-plan programmes. With concentrated efforts of the Agriculture extension, major share of the fallowlands can be brought under the plough. With all these interventions carrying capacity can be added to sustain about 70 million more cow-units.

40. There are some more potential areas, which need to be developed. Throughout the country, vast tracts are lying unused in the command irrigation areas. Initially they were under crops but by and by the inundation process made them unfit for crops. These tracts can be used for grasses with some soil treatment. Likewise, land strips lying unused along all the National and State Highways and district roads can be used. If totalled, the area of such side strips would be millions of hectares. A system can be developed for setting these strips apart as pasture lands for neighbouring gram panchayats on suitable rents. One very big potential area lies in Jaisalmer district of Rajasthan. Known as 'Sevan Grass' area, this can be developed into a **'grass reservoir of India'**, if managed properly. Spread over 22,16,527 hectares, this area can produce only sevan grass, thanks to the soil and climatic conditions of this area. ('Sevan Grass' area has been dealt with in detail under the heading 'National Cattle Colony'). Forest beeds are yet other potential areas, which can be developed into good quality pasturelands. Besides, as mentioned earlier, shifting from crop culture to Animal Culture is the need of the day. Change of focus will redesign the cropping pattern, providing lots of additional land for fodder plantation. In a nut-shell, there

are immense possibilities for increasing fodder production. What is required is to recognize the economic potential of cattle rearing. Once this is determined, the above cited potentials will automatically start getting harnessed.

Recommendations for Feed and Fodder Development

41. For development and conservation of feed and fodder, the following steps should be taken up at the level of concerned State Governments and the Central Government.

1) Development of feed and fodder through cultivation of fodder crops and fodder threes and regeneration of grazing lands are necessary not only to maintain the cattle population but also to provide basis for the economy of tomorrow. The economists are of the view that India, with its vast livestock and market demand for animal products, has a very bright future in livestock industry. As the Working Group on Animal Husbandry and Dairying for the Tenth Five Year Plan has also mentioned in its report, efforts should be made to change the mindset of agriculture scientists from crop culture to sustainable animal culture in rain-fed areas of the country, where livestock contribution to the family income can be more than 70%. In this connection, it is recommended that in the States of Rajasthan, parts of Harayana, Punjab, Madhya Pradesh, Uttar Pradesh, Andhra Pradesh and Karnataka, the emphasis should shift from crops to animal husbandry as a major livelihood option.

2) The State Governments should have time-bound drives to evacuate Charagah lands. Rules are there for evacuation of these lands. But the courts take such a long time that the purpose of the suit is defeated. By the time the case ripens, the occupant becomes eligible for regularisation under some other rule. With the result, Charagah lands are never recovered. Thus the State Governments should have time bound evacuation drives with the help of 'on-the-spot fast-track courts'.

3) Regulations should be made to the effect that while alloting 'sivay chak' (govt. land), priority be given to the gaushalas. In command area some patches be kept reserved for gosadans and gaushalas.

4) There are grazing beeds within the forest areas. These beeds are permitted for grazing of local cattle on compensation basis. The procedure is too complicated. It is suggested that the concerned Gram Panchayats be involved in the allotment process of grazing beeds in forest areas. Also, the charges should be just nominal.

5) The forest authorities should develop these beeds into first rate grazing grounds with the addition of fodder grasses and fodder trees such as 'khejri', 'Ber', 'Aru' etc.

6) To create awareness among the villagers, 'Charagah Conservation Committees' be set up. Representatives from forest, revenue, agriculture and panchayat raj institutions should also be involved.

7) The wasteland should be converted into grazing lands by planting grasses and fodder trees. This should be the responsibility of Gram Panchayats. The State Governments should give rewards to such village panchayats.

8) There is a vast area of non-forest forests, measuring 2,596,655 hectares, in the country. This land can be utilised for developing good grazing lands. The State Forest Department can take it up as a time-bound project. State-wise non-forest areas within the forest are given at annex -7.

9) In some States, Land Ceiling Acts have been applied to lands belonging to Gaushalas. As these institutions are required to grow fodder and develop pasturelands, they need sizable land areas. Thus, Gaushalas should be exempted from the provisions of the Land Ceiling Acts in the States.

10) Fodder seed availability has been identified as a major constraint for fodder production in irrigated as well as rain-fed areas. Good quality seeds are not easily available. It is proposed that a scheme should be developed to produce fodder seeds of high quality and these should be made available at reasonable prices to the farmers.

11) The forest grasses should be harvested during the monsoon season and converted into hay and packaged, compressed and transported to user destinations. This would reduce the fodder deficit to a large extent. **Problem soils and wastelands should be developed into fodder resource banks.** This should be done on a war footing.

12) Crop residues should be converted into energetic feed and oil-meals into proteins, which are usable by animals. Report of the Working Group on Animal Husbandry and Dairying for the Tenth Five Year Plan, in this regard, mentions that the animal production in the Indian sub-continent can survive only if the Indian Scientists provide the mechanism for using plant cell-walls in the crop residues as a source of energy for animal feeding. It is a paradox that India produces 500 million tons of crop residues and this has not been converted into energy to feed 400 million livestock. An effort was made to create an institution for this specific purpose to use biotechnology in breaking ligno-cellulosic ring in the plant cell-wall to produce lignin and celllulose through a solid-state fermentation process. Oil cakes, which are an important source of protein, contain a large number of incriminating factors like toxins, anti-growth factors and many oxidants, which bind the protein and make it unavailable for the animals. Investment for the development of technology should be made, so that crop residues (mainly straw) and oil cakes could be used by animal efficiently. This should be the priority of Animal Science Research in the country. The Department of Animal Husbandry and Dairying should have a special R&D fund to encourage institutions (both in public and private sector) to undertake result-oriented and time-bound projects in these areas.

13) Inadequate information is available on what feed and fodder livestock (cattle, buffalo, goat, sheep, pigs and poultry) consume daily under various field conditions in villages, towns and metro cities in different regions. There is thus a need of a central sector scheme for establishing a database on various feed and fodder resources, feeding

practices and consumption patterns in various agro-climatic zones and these data updated every two years. This also needs to be linked through input and output profiles of various animal products as cost-benefit studies.

14) A separate Feed and Fodder Development Authority should be established within the Department of Animal Husbandry with necessary technical manpower to undertake inter-agency coordination in fodder production, fodder seed production, conservation and transport.

15) For production and propagation of certified seeds of high yielding varieties of fodder crops and pasture grasses/legumes, the Government has established 7 Regional Stations at Mamidipally, Hyderabad (Andhra Pradesh), Gandhi Nagar (Guajarat), Hissar (Haryana) Suratgarh (Rajasthan), Sahema (Jammu & Kashmir), Alamadhi (Tamil Nadu) and Kalyani (West Bengal). During 2000-01, these stations produced 191 tonnes of fodder seeds, against the target of 250 tonnes of seeds and organised 1680 field demonstrations, against the target of 1600 demonstrations. Looking at the size of the country and the extent of the cattle-based economy, the number of regional stations is far too less. It is recommended that such stations should be established at Divisional Headquarters in all the States.

16) Budgetary provision for assistance to states for feed and fodder development needs to be enhanced and fully utilised. The provision was meagre during the 9th plan period and even this meager amount was not fully utilised as per the allocation and expenditure figures given in the table below:

Assistance to States for Feed & Fodder Development

(Rs. in crores)

9th Plan allocation	1997-98		1998-99		1999-00		2000-01		2001-02	
	B.E.	Exp.	B.E.	Exp.	B.E.	Exp.	B.E.	Exp.	B.E.	Exp.
50.00	5.00	3.70	5.40	3.50	6.50	4.40	4.00	3.00	3.00	0.50

It is recommended that this amount be raised and states be asked to prepare realistic and result oriented projects for fodder development.

17) The State Governments, particularly those where cattle population is large, should develop a system of having fodder reserves, just on the pattern of food grain reserves of Food Corporation of India. Such reserves may be scattered all over the State.

18) It should be made mandatory for Gaushalas, having land, to grow fodder crops, fodder trees and grasses.

19) The States should develop and maintain pasture and fodder patches along water reservoirs, canals and rivers.

20) Panchayat Raj Institutions, such as Gram Panchayats and Panchayat Samitis, should be encouraged to prepare proposals for developing pasture lands. The district planning committees should take up these proposals on priority basis using united funds.

21) It is desirable to put a ban on the use of combine harvesting machines in their present form, as the wheat straw is completely crushed in this mechanised process. Alternatively, suitable modifications be done so as to secure straw.

22) Plant Tissue Culture is one of the branches of Plant Biotechnology that can be successfully used for various plant development activities. The development of fodder plants through the adoption of Tissue Culture techniques, should be encouraged, as this can considerably increase the desirable agronomic characteristics over the normal ones, without affecting the nutrient quality.

23) Fragmentary holdings should be consolidated as early as possible either by persuasion or legislation and suitable portions of 'shamlate lands' be reserved for pasture-grounds, where long grass under the supervision of the Village Panchayat is to be grown for cattle and cut by sickle. Use of Khurpas should be banned, since this implement erases the grass by the root.

Problem of Stray Cattle

42. Ever increasing number of cattle in general and cow and its progeny in particular, roaming on the streets of towns and cities as stray cattle is a serious menace to the environment, transport system and general living of people. It is a serious threat and challenge to society, which needs no elaboration. It is a country-wide problem, spreading from rural areas to metropolitan cities. It is also the crucial issue, generally put forward whenever the question of total ban on cow slaughter arises. Time and again, it has been said that stray cattle are indication of the fact that these are unfit and their rearing is uneconomic. That is why the owners just push them out on the ultimate journey to the slaughter-house. Thus, first, it is desirable to examine whether these so called 'useless' cattle are really useless.

43. It has to be recognized that, in the general field of agriculture 70% of farmers are made up by small and marginal farmers, landless labourers and they have access to a total of 30% of the land in this country. By force of circumstances 67% of these people own livestock. The general pattern of this activity is that these livestock units are distributed in twos or threes, which are financially non-viable with their traditional ways. These are the persons who get rid of their cattle. The day these people come to understand the economic viability of their cattle - of even dry cows and old oxen - the problem of stray cattle will start vanishing. Let us have a glance at the cattle population of India.

Extracts : Livestock census-All India (1992) - Cattle

(Numbers in thousand)

Category	Rural	Urban	Total	Annual growth 1987-1992
A. Cattle (cross breed)				
1. Male				
i) Under 1 year	1027	130	1157	6.89
ii) 1-2.5 years	798	81	879	5.71
iii) Over 2.5 years				
a) used for breeding only	156	19	175	-15.86
b) used for work only	1981	119	2100	3.18
c) used both for work & breeding	230	26	256	10.56
d) used for neither breeding nor work	83	8	91	1.14
Total cross breed male cattle	**4275**	**383**	**4658**	**3.35**
2. Female				
i) under 1 year	1869	289	2158	7.69
ii) under 1-2.5 years	1681	225	1906	6.97
iii) Over 2.5 years				
a) in milk	3448	563	4011	6.86
b) dry	1578	203	1781	7.60
c) not yet calved	501	74	575	6.33
d) others	110	16	126	11.23
Total cross breed female cattle	**9187**	**1369**	**10557**	**7.19**
Total cross breed cattle	13462	1753	15215	5.92
B. Cattle (Indigenous)				
1. Male				
i) Under 1 year	10438	394	10832	0.58
ii) 1-3 years	13816	423	14239	-0.01
iii) Over 3 years				
a) used for breeding only	9447	595	10042	-6.31
b) used for work only	51602	1283	52885	1.32
c) used both for work & breeding	7768	222	7990	2.38
d) used for neither breeding nor work	906	44	950	-10.58
Total male indigenous	**93977**	**2961**	**96938**	**-0.01**
2. Female				
i) under 1 year	14209	715	14924	0.70
ii) under 1-3 years	18852	787	19639	0.22
iii) Over 3 years				
a) in milk	26145	1406	27551	0.45
b) dry	23590	860	24450	-0.47
c) not yet calved	4145	167	4312	-0.48
d) others	1507	48	1555	7.76
Total female indigenous	**88448**	**3983**	**92431**	**0.25**
Total indigenous cattle	**182425**	**6944**	**189369**	**0.12**
Total cattle	**195887**	**8697**	**204584**	**0.48**

44. It is revealed from the livestock census data that, out of the total cattle population, 189.3 million or say 92.7% cattle belong to indigenous breeds. Only 15.2 million (7.3%) cattle are of cross breeds. More than 96% i.e. 195.8 million cattle are in rural area as compared to 3.9% i.e. 8.6 million in urban areas. The main problem stems from the numbers of male cattle that are not used either for breeding or work and dry cows, together numbering about 25 million. Out of this number, 24 million or say 96% so-called 'useless' cattle are in the rural areas, while less than 1 million in urban areas. Thus the problem basically lies in the rural areas. It may be noted that the number of 'useless' indigenous male cattle is decreasing, the annual growth rate between 1987 and 1992 being of the order of -10.58%

45. It is truly unfortunate that the cow and its progeny, which used to be the backbone of agriculture and village economy, are of very limited use now. The cow is meant only for milk and the bullocks have been replaced by tractors. This has caused problems. The pattern of land holdings in India also has particular significance in relation to the use of animal power on the farm. Out of a total of 50 million holdings, nearly 75 percent are two hectares or less. With the small size of holdings, the use of even small tractors becomes uneconomic apart from other disadvantages of providing fuel and other maintenance needs of these tractors. With a cultivated area of about 135 million hectares, the distribution of 160 million draft animals (including male buffaloes) is quite thin and gives an average of about 0.6 horse-power per hectare. As the optimum requirement of energy for efficient agricultural operations over 1 hectare varies from 1 to 1.5 horse-power, draft cattle in India provide less than half the desirable energy and almost the entire available energy needs of agriculture. It is, therefore, obvious that Indian agriculture is deficient in total energy input and gets most of its energy input for farm operations from animal power and it would be a great folly to not develop this source of energy further. While draft animals are used mainly for agriculture operations they are also a useful source of energy for shallow irrigation through Persian wheels and other ways of lifting water from dug wells. In the present state of road linkages of villages to market places and with the consequences of higher oil imports the obvious means of transportation for men and material in large parts of the country still continues to be the animal driven cart.

46. Now, it is a well-recognised fact that regular use of chemical fertilizers leads to a situation when land ultimately becomes totally unproductive and barren. On the other hand, organic manures provide most of the minor nutrients of soil and add to its fertility. Successful experiments have been done in Vidarbh area of Maharashtra where about 2600 farmers have switched over to bio-fertilizers. Data collected has shown that the cost of organic manure was Rs. 300 to 400 per acre as against Rs. 2000/- per acre on chemical fertilizers. The crop was also better, qualitatively and quantitatively. A survey had been got conducted by Akhil Bhartiya Krishi Goseva Sangh, Vardha. The respondents were mainly small and marginal farmers who made the best use of cow dung and cow urine in their fields, in place of chemical fertilizers and pesticides. Thus bio-fertlizers (Farm Yard Manure, Nadep, Vermi-compost prepared from cow dung), bio-pesticides (cow urine and its preparations), bio-energy (Methane gas from Bio-gas plants), Panch-gavya medicines and use of oxen as draught animals, can prove rearing of even so called 'useless' cattle as economically viable. (Calculations and analysis of this concept dealt with in detail under the heading 'Bio-products of Cattle- organic manure and cow urine medicines', gas, electricity.)

Recommendations - Strategies for dealing with stray and 'so-called' useless or dry cattle

47. In this background, the strategies to tackle the problem of Stray Cattle have to be implemented at all levels and as a combined effort of various agencies. The following strategies are recommended for the purpose.

A. Establishment of Village gosadans

48. Village Gosadans should be established in the manner proposed below:

1) Each village should have one Gosadan to take care of the stray cattle of the area. Also the seasonal left-outs can be accommodated therein.

2) The Gosadan has to be managed by the village community, with full involvement of the Village Panchayat. A 'Gosadan Committee' can be constituted in the meeting of Gram Sabha comprising persons from all walks of life. Technical persons such as from agriculture and veterinary side should invariably be co-opted on this committee. The State governments are required to make provisions regarding constitution of 'Gosadan Committees' in their respective Panchayati Raj Acts.

3) 100 acres of land or as per availability, be attached to the Gosadan. Gram Panchayat can do it as in most of the States, grazing lands (gochar bhumi) are within their jurisdiction. This land can serve not only as the grazing ground but also as the source of green and dry fodder to some extent.

4) The problem of unauthorised occupations on the 'Charagah' or Gochar lands can be taken care of by 'fast track courts.'

5) In the villages where 'charagah' land is not sufficient, the wastelands can be converted for development of grass and fodder trees. Waste lands could be converted into fertile lands by various convergent natural nutrients prepared by 'gobar-gomutra- chhach, Amritpani' etc.

6) While arrangement of such land should be the responsibility of the revenue agencies, maintenance part may be entrusted to the Village Panchayat. Some sort of mechanism should be developed for linking the maintenance of Charagah land with the grants-in-aid given to a particular Gram Panchayat.

7) As the Gosadan will take care of the stray cattle, which otherwise could have caused damages to the standing crops of the village farmers, it should be mandatory for every farmer to donate one trolley of fodder and one bag of cereals to the Gosadan at the crop harvesting time. Of course, it can be in proportion to the agricultural land area possessed by the village farmers. Such an experiment is being tried successfully in Bazzuwala village of Sriganganagar district of Rajasthan in a voluntary way.

8) The Go-sadan, so established, can be developed into breeding centre of good local indigenous breeds. It can also develop good breed bulls, meant for service of the whole village.

9) To augment its resources, the go-sadan can prepare bio-fertilizers and bio-pesticides, which can be sold to local farmers at very concessional rates. Thus, there would not be any problem of marketing for the products of Gosadan.

10) Go-sadan can have a bio-gas plant of a suitable size to take care of its energy requirements for fuel, light and water pumping. Agencies like K.V.I.C., DRDAS and Non-Conventional Energy Development agencies can assist these Go-sadans in establishing Bio-gas plants.

11) No cash subsidy should be given to these Go-sadans. Instead H.R.D. training and provision of infrastructure should be there. In fact, it should be an independent enterprise. Let the village own it after having a considered view on the importance of the Gosadan in their village economy.

12) 'Organisation of Gosadans' be added to the list of 29 subjects for District Plan in the 11th Schedule at the end of 73rd Amendment Act.

13) In the proposals prepared at Gram Panchayat and Block level, plans for organisation of Gosadans included in the district plans, should be taken up on priority.

14) Public contributions and donations from individuals and organisations will be the main source of funding for organisations of Gosadans. As it would be an important institution for rural development, funds may be earmarked for establishment of gosadans in the M.P. and M.L.A. quotas also.

49. The proposed Village Gosadans will be different from the Gosadans proposed by Sardar Datar Singh Committee in many ways, as mentioned under:

Comparison of 'Gosadan' Concepts of

Datar Singh Committee (1947)	National Commission on Cattle (2002)
(i) Big size organisation involving 4000 acres of land and 2000 cattle	(i) A small village level institution having stray cattle of only gram panchayat area, and land of 100 acres or as per availability
(ii) A Government-run institution	(ii) An institution run by Community participation
(iii) Involved only expenditure	(iii) Also income by way of bio-gas, bio- fertilizers, bio-pesticides, panch-gavya medicines, breed improvement, bull service and also milk.
(iv) Totally based on governmental funding	(iv) Community funding in form of fodder and feed, no cash subsidy, governmental assistance in form of infrastructure and H.R.D.

(v) Functioning in isolation	(v) Linkages with 'Krishi Go-vigyan Anusandhan Kendras, research organisations, agriculture and veterinary extension units.
(vi) 50 years back there was no of scientific use of cow dung and cow urine, no thought for exploring avenues.	(vi) Organic farming is call of the day, lot of awareness research is being done on cowdung and cow urine to make them basis for economic viability of so new called 'useless' cattle.
vii) 'Gosadan' then was a sectoral function allotted to a particular department	*vii) Establishment of Gosadan, now, will be part of the District Plan.*

In the light of above facts, the Commission is confident that the proposed 'Village Gosadans' will have very many more chances of succeeding than did the Gosadans envisaged by the Datar Singh Committee.

B. Establishment of Cow Sanctuaries

50. It is proposed that Cow Sanctuaries be established in each of the States, as per details below:

1) In every State there are big patches of land lying unused and unoccupied. Such lands can be developed into Cow Sanctuaries. All the stray cattle of the adjoining cities and towns may be accommodated therein. Thus, if Gosadans will take care of stray cattle in rural areas, Cow Sanctuaries will help cities in getting rid of the ever-increasing problem of stray cattle.

2) Preferably, the land for a Cow Sanctuary should be earmarked in semi-forest or culturable waste lands which, with some efforts, can easily be developed into grazing land. Plantation of fodder-trees of different varieties suited to the topography and climatic conditions of the area will also be required. The State Forest Department can act as the nodal agency for developing vegetative cover in the Cow Sanctuary area.

3) The State Government may set apart land for the purpose and provide it to the managing agency on lease basis.

4) Transportation of stray cattle from towns / cities to the Cow Sanctuaries will be the responsibility of the concerned local body such as Municipal Corporation, Council and Nagar Palika etc.

5) Average size of a Cow Sanctuary may be around 500 hectares. Out of it 350 to 400 hectares of land be earmarked for natural and fodder grasses. Veterinary unit, a few cowsheds, living quarters for care takers, Bio-gas plant(s) and Bio-Fertilizer-pesticide units may be arranged in the Sanctuary.

6) The land earmarked for Cow Sanctuaries will require to be fenced by barbed wire to ensure that the cows live and graze in the earmarked territory and are secure from wild animals.

7) Adequate arrangements will require to be made in the earmarked area for drinking water and the fodder. In the initial phase of the project, cows may require to be fed by transporting fodder from outside.

8) Management of Cow Sanctuary may be entrusted with some non-government organisation of repute having experience in Cow culture and organic farming. The governmental aid should restrict itself to infrastructure and HRD. Of course, veterinary facilities and technical assistance for scientific use of cow dung, cow urine and carcass from the concerned governmental agencies must be ensured.

9) Maintenance of Cow Sanctuary may prove burdensome in the first few years. Later on, availability of grazing grasses and trees will start providing fodder. Bio-Fertilizers, Bio-pesticides and Bio-energy produced from cow dung and cow urine will also be source of income. Till such time, donations from individuals and organisations, along with grants-in-aid from the organisations like Animal Welfare Board of India may prove valuable helping hands.

C. Establishment of Cattle Colonies

51. Some of the Cow Sanctuaries should be selected for developing as Cattle Colonies as per details given below:

1) Out of the Cow Sanctuaries to be established as suggested above, the suitable ones can be used for developing Cattle Colonies. Cattle Colonies would be the areas with sufficient natural and fodder grasses where milk-cows can be kept.

2) On an average, a ranch of 500 hectares may be sufficient to sustain 250 milch cows and 50 'Gopalak' families.

3) In addition to milk production, economic viability of these colonies can be ensured through proper use of dung and urine etc.

4) Energy from Bio-gas plant(s), Cottage industries based on Cow products (dung-urine) and Panchagavya will augment the income of Gopalaks of the Cattle Colony.

5) They may also be developed as Breeding Centres for local indigenous breeds, which would provide bulls to farmers in the adjoining areas for breeding puroposes.

6) Cattle Colonies may be linked primarily with Dairy Development agencies along with other rural development organisations of the State.

7) Management of these Cattle Colonies be done by co-operative societies with maximum participation of 'Gopalaks'.

D. Establishment of National Cattle Colony in Jaisalmer area

52. In view of the special qualities and climatic conditions of the Jaisalmer area in Rajasthan, it is proposed that this area be developed as a National Cattle Colony.

1) Jaisalmer, the largest District of Rajasthan, covers 38,401 sq. Km. area and lies on the Indian part of Thar desert. The topography of this district is heterogeneous e.g. barren rocky area, shifting sand-dunes, sandy plains, saline flats, alluvial flats, dead streams and hills. As a result of the agro-climatic conditions, agriculture is low-key (10-15%) in Jaisalmer. Grazing-based animal husbandry has been the predominant occupation in major part of the District.

2) Geologically, major part of the District is hard pan area. Because of hard rocks just beneath the mantle of sandy layer, the area is unable to absorb water. That is the reason why the area has been able to sustain thick natural grass constantly in spite of scanty rainfall.

3) The natural grass cover of Jaisalmer District is typified by Lasiurus Sindicus (Sewan) and Panicum turgidum (Murat) grass species. Out of the total grass production, Sewan grass alone contributes more than 80 percent. This grass species is the basis of life in this desert region and there is no other comparable grass species in the deserts of the world. It is a perennial, tufted, highly drought-resistant variety, with high quality of palatable forage. The species is endemic to north region of India and confined to Barmer, Jaisalmer and Bikaner, but maximum area is covered in Jaisalmer district. It has strong roots, which can sustain continuous drought of 6-7 years and more. It has a very compact and vigorous root system and a single plant occupies more than 10m3, with very high moisture-uptake efficiency. With onset of rains, it turns lush green and sets seed within 45 days, the stage at which it has the highest nutritional value. The crude protein contents at this stage remains around 14 percent and even at dried stage it remains between 6-8 percent.

4) Sewan is completely adopted to the local eco-system. The Tharparkar, Sindhi and Rathi breed varieties of cow prefer Sewan to any other grass. The species is drought-resistant for 7 years, and requires minimum water for maximum growth, which means cost-effective irrigation. The storage life of processed grass is at least 10 years.

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5) It has been concluded at many forums, through studies undertaken in the area, that the hardpan area is not suitable for irrigation. If the area is irrigated by Canal for development of agriculture, it will get inundated and spoiled. That is the reason why agriculture in Indira Gandhi Canal command area has not been a success story in Jaisalmer district.

6) Keeping all such factors in view the Central Govt. may consider to develop a 'National Cattle Colony' in the Sevan grass area of Jaisalmer district. Good indigenous breeds of cattle like Tharparkar may be kept there.

7) It will be a National Project with all R&D facilities concentrating on development of good indigenous breeds, rich fodder grass, bio-fertilizers, bio-pesticides, bio-energy and various small industries based on panchagavya and other cow milk products.

8) With a view to implement the project successfully, the whole area can be subdivided into smaller units. According to the revenue records, a big stretch of 22,16,527 hectares of land is lying as wasteland. A sizable part of this wasteland is covered by

the Sewan grass as a natural vegetation. It can be developed in other parts also. The District Administration reported that it has been successfully experimented at 47 sites during the last 15 years under the pasture development programme. List of these sites is placed at annexure VIII. Thus, even if half of the wasteland, say 10,00,000 hectares of land is put under the project, it will change the face of the District's economy. The 'Golden Grass Yojana' experimented jointly by the State Animal Husbandry department and the DRDA Jaisalmer in Mohangarh area and a similar scheme carried out by the Regional Centre of CAZRI (Central Arid Zone Research Institute) suggest economic viability of such a project in the light of income from milk, sale of bulls, products of cow dung, cow-urine and Bio-gas etc.

9) One unit of 1000 hectares may sustain 500 adult cows and 100 families. 80% of the land should be devoted to cultivation of Sewan grass, while remaining 20% be used for the purpose of green fodder, cowsheds, living houses, orchards and growth of medicinal plants etc. The local experience informs that the Khejri, a local drought-resistant fodder tree, and Sewan grass have very good combination. Khejri, in fact, adds to the fertility of the soil. Thus, thousands of Khejri trees have to be planted in the pastureland. Water supply for sprinklers can be arranged through tube-wells dug for the purpose or from the Indira Gandhi Canal. If managed properly, the per-hectare output of Sewan grass, with 4-5 cuttings in a year, may be 10 to 12 tons. Likewise, one fully-grown Khejri tree may provide 50 kg. dry fodder in a year.

10) The project ' National Cattle Colony' may be taken up in phases with the ultimate goal of 1000 units, each unit of 1000 hectares. Thus, it would be a huge colony giving shelter to 5 lakh adult cows and 1 lakh Gopalak families.

11) The Cattle Colony will be managed by participating farmers, lease holder individuals, organisations, industrial units, co-operative societies, NGO's, sectoral departments and any other agency, genuinely interested in the pasture development and cow rearing.

12) When fully developed, this National Cattle Colony would meet a major part of the milk requirements of the western India. **It will be a unique example of environment-friendly cattle-based and self-contained villages with potential employment opportunities.**

Eco-Friendly Cow based Village Development Scheme: A blue print

49. Sincere efforts are being made for organic revolution in different sectors but there is so much compartmentalization that the target group i.e. villagers stand confused and directionless. It is, thus, the need of the day to create proper awareness amongst the village community in regard to an integrated approach for 'Eco-friendly Cow based Village Development Scheme', which takes care of all concerns viz. organic farming, water management, Bio-energy, village industry, animal welfare, vegetative cover, freedom from pollution and social & cultural enlightenment of the village. Water Management, crops, fodder, Bio-energy, village industry or social enlightenment of the village may look different in vernacular but in reality they are the segments of the one and the same 'whole'. In a nutshell, it is a pragmatic approach for not only sustainable development of the village or rural poor but also a blueprint for protection of cow and its progeny. It is a practical way for

re-establishing the role of cow and its progeny in the rural economy. The scheme envisages the creation of a model village, which will act as a catalytic agent in the area. In the first phase, a few villages can be taken up in every Region / State. An outline of the Blueprint for this Scheme is given at Annex VI (1).

An Outline of the Blueprint for the 'Eco-Friendly Cow Based Village Development Scheme'

1. Basic Objectives:

i) To promote Eco-friendly organic farming
ii) To create employment opportunities using local resources
iii) To encourage village artisans, promote cottage industries and develop their backward & forward linkages.
iv) To create awareness among the village community for a pollution free environment.

2. Goal:

Sustainable development of the village; its rejuvenation in regard to self-employment and self sufficiency.

3. Identification of village :

i) Proximity
ii) Goshala's Co-ordination
iii) Affirmation of Gram Panchayat
iv) Enthusiasm of village community

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4. Awareness creation

i) Goshala functionaries
ii) Sectoral extension at the village level
iii) Village community
iv) N.G.O.'s and other concerned agencies

5. Activity Focus

i) Water management
ii) Organic farming
iii) Self employment opportunities (village industries)
iv) Vegetative cover and pollution
v) Social & cultural enlightment

i) Water Management

Thrust:

- Proper assessment of requirement and availability of drinking water
- Maximum and best possible use of water in agriculture and allied activities
- Raising underground water level

Strategy:

- Conserve surface water run-off during monsoons
- Revival of traditional systems for storage of rain-water
- Arrest underground water declines through artificial recharge

Interventions:

- Observation and intensive study of behavioural patterns of natural flow of rain-water
- Deepening of village ponds for additional storage capacity.
- Construction of cement-plugs and check-dams
- Pucca water channels or P.V.C. pipes for irrigating the fields
- In the areas with higher gradient lining of fields with walls across the slope to check the flow of water and soil-erosion
- Artificial recharge through:

  (a) Percolation tanks
  (b) Cement-plugs/check-dams
  (c) Rooftop rainwater harvesting through injection wells

ii) Organic Farming

Thrust:

- Popularise and assist eco-friendly organic farming
- Minimise the use of chemical fertilizers and pesticides

Strategy:

- Create awareness among the villagers in regard to role and importance of cow progeny in the village economy
- Undertake action research projects in the field of organic manures and pesticides.
- Training and demonstration on the adverse effects of chemical fertilizers and pesticides and advantages of organic farming along with manufacturing of Bio-manures and pesticides.

Interventions:

To popularise organic farming, interventions have to be taken up at two levels:

(a) At Family Level

- Each family to have cow, bullock, calf etc. In other words, each family to have its own Goshala.
- Cluster of 3 - 4 families to have:

- ➢ One common Biogas Plant
- ➢ Nadep compost pits (Number as per availability of cow-dung and their requirement)
- ➢ Vermi Compost pits (as per requirement)
- ➢ Arrangement to prepare pesticides using the urine of their cows.

- Such arrangement will take care of:
  i) Milk, Curd, 'Chhachh', ghee etc.
  ii) Cooking gas and light for all the member families
  iii) Organic manure and pesticides for their fields
  iv) Draughts animals for their fields and transport
  v) Occupation/Employment for the unemployed or less-employed persons of the member families.

(b) At Village Level:

- Each village to have one Gosadan accomodating all stray and surplus cows (during non lactation period) of the community.
- Gosadan to function as a breeding centre to develop goods breeds of cows and bullocks suiting to local conditions
- Gosadan will have arrangements for manufacturing:
  i) Nadep compost
  ii) Vermi Compost
  iii) Organic pesticides
- Goshala products will be sold for compensating labour of the landless persons who are put on the Job as an employment.

iii) Self-Employment Opportunities

Thrust:

- Developing cottage/village industries to create additional employment opportunities for the village youth.

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Strategy:

- Identification of the natural resources available within the village and adjoining areas providing input (raw materials etc.) for the prospective village industries such as Ago-based, forest based, mineral based, Chemical based, Non-conventional energy based or the Service industries involving traditional village craftsmanship. Cow-dung and cow urine be taken up as the raw material for organic manure and pesticide village industry.
- Identification of unemployed persons within the village community, who are capable of running the aforesaid industries.
- Assessment of requirement and availability of power resource(s) to run these village industries.

Interventions:

- Assignment of the industries to person(s), keeping in view their capability and capacity to take up partial financial burden. (Free gifts do not germinate involvement).
- Arranging financial assistance from the concerned Governmental or Non-governmental agencies.

- Organise training for various vocations.
- Develop a system of monitoring and review at the level of Village Dev. Committee.

iv) Vegetative Cover and Pollution

Thrust:
- Maximum Vegetative cover
- Minimum pollution

Strategy:
- Discouraging wooden fuel for domestic purpose
- Effective prohibition on tree cutting
- Afforestation
- Safeguarding the village charagah

Interventions:
- Outlet of domestic water to be used for plantation along the village streets
- Motivating farmers to grow trees on their fields
- Social forestry on waste lands by the community
- Creation of awareness regarding the necessity of charagah for the village economy.

v) Social and Cultural Enlightment

Thrust:
- Education, human-values, sense of citizenship, health, gender, folk culture.

Strategy:
- Elementry education for all
- Special emphasis on women empowerment
- Provision of sanitation and health facilities
- Arranging community/street lights
- Linkage of the village with other places through the means of transport and communication.
- Reviving the traditional village cultural forums such as sat-sang, kirtan, folk music, folk
- art etc.
- Encouraging traditional village games

Interventions:
- Starting primary/upper primary school, Jan-shikshan Nilayam with the assistance of concerned governmental agency.
- Extension of medical facilities to the village through health worker, ANM, dispensary etc.
- If conditions are favourable, the village Gosadan can also develop its own cow-therapy wing using Panch-gavya medicines.
- Non-conventional energy units for street-lights to be set up with the assistance of concerned agency.
- Submitting proposals for road and telephone linkage to the concerned department.

- Starting yearly cultural activities to motivate local participation and encourage folk music, dance, art and village games.

6. Pre requisites

As it has to be a micro-plan based integrated development scheme, the following prerequisites are desirable.

1) Organisation of a village development committee
2) Village survey & data collection (Formats at annexure-1 and 2)
3) Analysis of existing development programmes
4) Co-ordination with other governmental and non-governmental agencies involved in the development process

7. Plan Formulation

On the basis of data gathered through surveys and village records, village plan will be formulated having special emphasis on the following.

1) Plan cost : Intervention wise
2) Funding source(s)
3) Fund flow
4) Implementing agency
5) Time frame
6) Monitoring and review

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CHAPTER – VII

REPORT OF

COMMITTEE ON BREED DEVELOPMENT AND PRESERVATION

Shri K.L. Godha	**Convener**
Report prepared by **Smt. Chitra Gouri Lal**	**Member Secretary**

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CHAPTER VII

BREED IMPROVEMENT AND PRESERVATION

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CHAPTER VII

BREED IMPROVEMENT AND PRESERVATION

(By Member Secretary)

1. Origin of Cattle

1.1 Cattle are considered to have been one of the first animals domesticated by man for agricultural purposes. They were tamed to provide milk, meat and hides and for draft purposes. Where and when exactly this domestication started is not clearly documented historically, but it is thought cattle were probably first domesticated in Europe and Asia about 8500 years ago.

1.2 Domesticated cattle belong to the family *Bovidae,* which includes ruminants with paired, hollow, unbranched horns that do not shed and an even number of toes. Species belonging to the family *Bovidae* that are so closely related to true cattle that they can interbreed include the bison, buffalo, and yak. (For the purposes of this report, of course, the term 'Cattle' extends only to the Cow and its progeny).

1.3 Cattle belong to the genus *Bos* and there are two species *tarus* (which includes all breeds of British and European cattle like Angus, Hereford etc.) and *indicus (which includes t*he humped cattle of the tropical countries like India and Pakistan). Many contemporary breeds are the result of crossing two or more of the older breeds. Purebred cattle breeds have been selectively bred over a long period of time to possess a distinctive identity in color, size, conformation, and function and have the prepotency to pass these traits to their progeny.

1.4 Zebu cattle breeds, such as Gir, Ongole (Nellore) etc., which are the humped cattle, originating in India, are thought to be the world's oldest domesticated cattle. They were introduced into the United States as early as 1849. The first importations of Zebu from India into the Western world, especially the American continent, were bullocks for draft purposes, but they later interbred with other cattle breeds and produced hybrids, which were bigger, faster growing, and more thrifty. These cattle often did better than the cattle, which the settlers from Europe brought with them, when they settled in America. In USA, Brahman Breeds, when have been developed from Indian cattle breeds and their germplasm, are the basis of a flourishing meat industry. In Latin America, several breeds have been developed from Indian cattle breeds like Gir and Ongole. The first Indian cattle landed on Brazilian shores in 1906 and it is ironical that, while the finest Indian zebu specimens can be seen all over Brazil, in their native country, India, they are very rarely to be found and are mostly confined to Government institutional farms.

1.5 Although Indian cattle and their germplasm are not officially being exported presently, on account the prevalence of a number of diseases in the country, there is still a demand for the germplasm to upgrade foreign stocks. Purely on the basis of development of cattle of Indian origin, especially the heavy breeds, Brazil has become one of the largest exporters of meat to the external world. The National Commission on Cattle is concerned with the issue of slaughter of cattle and feels that indiscriminate or clandestine export of live cattle or germplasm, ostensibly for breeding purposes should be stopped. Even if the cattle / germplasm is going for breeding, one should bear in mind that the breeding is only for the purposes of meat or beef production. In view of our feelings against cow slaughter in general, whether such slaughter occurs within the country or on foreign shores, we should not be instrumental in furthering such activities. It is not as if the country is losing millions of dollars in foreign exchange if the exports are stopped as the potential earnings are quite insignificant. On the other hand, a ban on exports would help to conserve our germplasm for further propagation and upgradation of our own genetic resources, which are fast depleting.

1.6 There is general concern (the world over) that the genetic variation within the few domestic animal species is disappearing through breed substitution and crossbreeding. Any reduction in the diversity of genetic resources narrows the scope to respond to changes in the environment, disease challenges, or demand patterns. In the tropics, however, the most serious concern is the imminent loss of locally adapted breeds. (*Ref. Felius, Cattle breeds - an encyclopedia, 1995 – General Introduction*).

2. Indian Cattle Breeds

2.1 India has a very rich reservoir of genetic diversity and possesses some of the best breeds of cattle and buffaloes in the world. The country's population of 218.8 cattle accounts for 17% of the total world population of cattle. The best indigenous germ plasm of Milch, Draught and Dual purpose animals account for 22-25% of the Indian cattle population, while 7-10% of the Cattle population is cross-bred. Most of the indigenous breeds of cattle excel in draught capacity. The native livestock breeds exhibit a distinct superiority in utilizing poor quality feed and are adapted to withstand heat and show better resistance to tropical diseases.

2.2 The origin and important features and characteristics of the main indigenous breeds of Indian cattle are given in the **Annex VII (1) #** of this Chapter.

2.3 Details of breeding tracts, important characteristics and other features of some of the important recognised breeds of cattle are given below:

Name of breed	Breeding Tract	Characteristics and important features
1. Gir	Saurashtra region of Gujarat	Gir cows are high milk yielders, milk yield ranging from 2000 kg to 6000 kg per lactation with fat percentage ranging from 4.5% to 5%. Bullocks are heavy and powerful draught animals.
2. Sahiwal	Herds established in Punjab, Uttar Pradesh, and Haryana.	Sahiwal cows are well-known for their milking capacity. Milk yield varies from 2000 to 4000 kg per lactation, with fat content varying from 4% to 4.5 %.
3. Red Sindhi	Number of Red Sindhi herds have been established in India.	The milk yield varies from 2000 kg to 4000 kg per lactation, with fat content varying from 4% to 4.5 %.

	Name of breed	Breeding Tract	Characteristics and important features
4.	Rathi	Bikaner and Ganga-nagar Districts of Rajasthan, Sirsa Distt. of Haryana and part of Ferozepore district of Punjab.	Good potential for milk production. Resistance to adverse climatic conditions of the desert area. Milk yiled ranges from 1800 kg to 3500 kg per lactation.
5.	Tharparkar	Tharparkar District of Sind (Pakistan) and Kutch, Jodhpur and Jaisalmer desert area of India.	Bullocks are slow workers. Cows are good milkers, with average milk yields varying from 1800 to 3500 kg per lactation.
6.	Deoni	Marathwada region of Maharashtra	This is dual-purpose breed.
7.	Haryana or Hariana	Home tract is in Haryana State but the breed is found in U.P., Bihar and parts of Rajasthan.	Bullocks are useful for ploughing and transport. Cows are good milkers. Milk yield is 1000 to 2000 kg per lactation.
8.	Kankrej	Bani tract of Bhuj District, North Gujarat and part of Rajasthan adjoining to Gujarat.	Milk yield is 1500-4000 kg per lactation. Bullocks are strong and hard-working.
9.	Ongole	Guntur and Ongole Districts of Andhra Pradesh.	Bullocks are useful for ploughing and cart-work / transport. Cows are fair milkers.
10.	Red Kandhari	Breeding tracts are in Marathwada region of Maharashtra	Dual purpose and hardy in nature. Bullocks are good draught animals. Cows are good milkers.
11.	Nimari	Khandwa District of Madhya Pradesh.	This is a dual purpose milk and draught breed.
12.	Malvi	Parts of Madhya Pradesh and Rajasthan.	A dual purpose breed.
13.	Gaolao	Found in Vidarbha Region of Maharashtra.	Bullocks are useful for ploughing. Cows are average milkers.
14.	Dangi	Found in Western Maharashtra.	Especially good for heavy rainfall areas for draught purpose.
15.	Khillar	Found in southern part of Maharashtra	Bullocks are hardy and well-known for being fast in work.
16.	Amritmahal	Found in Karnataka	Bullocks are well-known for draught power and endurance. Average milk yield is 1000 to 1200 kg per lactation.

	Name of breed	Breeding Tract	Characteristics and important features
17.	Hallikar	Found in Hassan, Mysore and Tunkur districts of Karnataka.	Draught breed both used for road and field agricultural operations.
18.	Kangayam	It is found in Coimbatore District of Tamil Nadu.	Bullocks are strong draught animals. Their skin is very strong and tight.
19.	Nagore	Nagore District of Rajasthan.	It is an excellent draught breed. Bullocks are good for draught purposes.
20.	Bargur	Coimbatore District of Tamil Nadu	Bullocks are good work animals.
21.	Kenkatha	Found along the Ken river of Banda District of U.P. and M.P.	Bullocks are small but fairly sturdy animals and good for cultivation in rocky areas.
22.	Siri	Hill tracts around Darjeeling and in Sikkim. Bhutan is the real home of this breed.	This breed can stand the rugged conditions of the mountains very well. Bullocks are eagerly sought after for draught purposes (ploughing and transport) due to their reputed great strength.
23.	Bachaur	Sitamarhi District of Bihar.	Bullocks are used for draught purpose. Cows are poor milkers.
24.	Kherigarh	Kheri District of U.P.	The cattle of this breed are very active and thrive on grazing only. Bullocks are good for light draught and quick light transport. The cows are poor milkers.
25.	Mewati	West Alwar and of Rajasthan. The breed is mainly found in Mewat region Bharatpur districts but is also known as Kosi.	Mewati cattle are in general sturdy, powerful and docile and are useful for heavy ploughing, carting and drawing water from deep wells. Cows are said to be good milkers.
26.	Umblachery	Thanjavur District of Tamil Nadu. white spots.	It is a draught breed of the Zebu type, similiar to Kangayam but smaller. They are gray with
27.	Krishna Valley	Southern border of Maharashtra and Andhra Pradesh.	Bullocks are powerful and good for heavy ploughing and slower draught purpose. Cows are fair milkers.
28.	Ponwar	Pilibhit and North West part of Lakhimpur Kheri District of UP.	Draught purpose. Cows are poor milkers.
29.	Vechoor	Kerala	Small animal. Bullocks are mainly used for draught purpose. Cows are poor milkers.

3. Cattle Breeding Policies and Programmes in the Planning Process

3.1 It is necessary to see how the issues relating to Cattle Breeding have been dealt with in the successive Plan periods starting from the First Five Year Plan. It is seen that, while the issue of surplus cattle has been handled in different ways in the various Plan documents, some discussing this issue at great length and other remaining completely silent on the subject, other issues such as cattle development, genetic improvement and breeding etc., have also received varying degrees of emphasis in the different Plans.

3.2 *First Five Year Plan*

3.2.1 The First Plan document speaks of the fact that the available feed could not adequately sustain the then existing bovine population and noted that, while there was a deficiency of good milch cows and working bullocks, there existed a surplus of useless or inefficient animals, and that this surplus was pressing upon the scanty fodder and feed resources. It was suggested that a programme for improvement of cattle should be launched, involving arrangements for production and use of adequate numbers of superior bulls of known parentage and productivitiy and elimination of inferior and unapproved bulls.

Key Village Scheme

3.2.2 It was envisaged that, under the Key Village Scheme, 600 centres would be set up in the Plan period, each centre with three or four villages having about 500 cows of over three years of age where maintenance of records of pedigree and milk production, feeding and disease control would receive full attention and techniques of artificial insemination would be utilised by setting up one AI centre for four key villages centres. Improvement of common grazing grounds, growing of fodder crops in suitable rotations, preservation of surplus monsoon grass, and use of untapped fodder resources were some of the key components of the Scheme.

3.3 *Second Five Year Plan*

3.3.1 The document for the Second Five Year Plan notes that the object of animal husbandry programmes is, inter alia, to increase the supply of milk, meat and eggs and to provide efficient bullock power for agricultural operations in every part of the country, which meant that the quality of the cattle was of critical importance to the rural economy.

Cattle Breeding Policy and Programme

3.3.2 The Plan paper documents the fact that there are as many as 25 well-defined breeds of cattle and six well-defined breeds of buffaloes in India, which are distributed in different parts of the country. High class specimens in each breed are limited in number and are found in the interior of its particular breeding tract, around which there are animals of the same type but of poorer quality. A few of these breeds are of the dairy type while a large majority of the breeds are of the draught type. In between there are "dual-purpose" breeds, whose females yield more, than an average quantity of milk, while the males are good working bullocks. It was found that the while the well-defined breeds are largely found in the dry parts of the country, over large parts of the country in the east and the south of India where rainfall is very heavy, the cattle are non-descript and do not belong to any definite breed.

3.3.3 The major guidelines of the all-India breeding policy, drawn up by the Indian Council of Agricultural Research and accepted by the Central and State Governments were:

- In the case of well-defined milch breeds the milking capacity should be developed to the maximum by selective breeding and the male progeny should be used for the development of the nondescript cattle.
- In the case of well-defined draught breeds, the objective is to put as much milk-producing capability in them as possible, without materially impairing their quality for work.

3.3.4 Thus, the breeding policy was generally designed to increase the production of milk in the country, without affecting the position in regard to the supply of bullocks required for cultivation. In every draught breed there is always a small number which give more than an average quantity of milk and by selecting bulls from this group, the milk production of the population could be progressively increased by further selection and breeding. When this is done in the interior of the breeding tracts, the bulls produced can be used in the outer areas in order that general improvement may be brought about in the entire population.

3.3.5 For the implementation of this policy, each State was divided into zones according to the breeds used in them. Thus, in the districts of Ahmedabad, Kaira, Broach and Surat. the breed to be used was 'Kankrej'. In the western tracts of U.P. like Saharanpur, Muzaffamagar, Aligarh, Mathura, etc., the breed proposed to be used was 'Hariana'. In the hilly tracts such as Dehra Dun, Garhwal, Almora and parts of Nainital, where the cattle are non-descript, Sindhi bulls were to be used.

Key Village Scheme

3.3.6 t was envisaged that, mainly through the key village scheme, the programme of livestock improvement would be pursued by State Governments. This scheme provides for concentrated work in selected areas. It envisages castration of scrub bulls, breeding operations controlled by artificial insemination centres (each of which is intended to serve about 5,000 cows of breeding age), rearing of calves on a subsidised basis, development of fodder resources and the marketing of animal husbandry products organised on co-operative lines. During the first five year plan, 600 key villages and 150 artificial insemination centres had been established. During the second plan 1258 key villages, 245 artificial insemination centres and 254 extension centres were to be set up. The programme was intended to produce about 22,000 improved stud bulls, 950,000 improved bullocks and a million improved cows. The scheme made encouraging progress, but in respect of fodder development and the marketing of animal husbandry products not much headway was made. On the other hand, controlled breeding had found a large measure of acceptance and States had enacted the necessary legislation for implementing the scheme. In the early stages, work in many key villages and artificial insemination centres was delayed for want of equipment and shortage of staff, but everywhere the local people were willing to provide rent-free buildings and contribute in other ways to make the scheme a success. During the second plan, a great deal of attention was to be given to the fodder programme as this was an essential basis for the programme of cattle development. In each area efforts were to be made to develop the limited pasture lands which were available. With the large programme envisaged in the second plan, a high degree of urgency was attached to the provision of adequate staff, to better administrative planning of supplies and to public education in matters affecting animal husbandry development.

3.4 *Third Five Year Plan*

3.4.1 The Third Five Year Plan document took note of the seriousness of the problem of surplus and uneconomic cattle and arrived at the conclusion that weeding of inferior stock was a necessary complement to a programme of cattle improvement and systematic breeding. The Plan states that having regard to the size of the problem of surplus cattle and its special features, with a view to elimination of scrub male stock, it was proposed to undertake a large-scale programme of castration during the Third Plan. The programme envisaged that mass castration work would be initiated first, in areas in which intensive livestock development programmes have been taken up and would be later extended to other areas.

3.5 *Fourth Five Year Plan*

3.5.1 This Plan has not specifically discussed the problem of surplus cattle but has talked about the cattle development programmes launched in the previous Plan period. It was proposed that the schemes of the Third Plan including those relating to cattle breeding farms, bull rearing farms, Goshala development, control of wild and stray cattle and organisation of mass castration would continue and three central cattle breeding farms and eight bull rearing farms would be set up during the Fourth Plan period. It was also indicated that Sire-evaluation cells would be established in each State.

3.6 *Fifth Five Year Plan*

3.6.1 The document for the Fifth Five Year Plan has not mentioned the animal husbandry sector, and while discussing the perspectives on agriculture has singularly concentrated on food-grain production and related issues. Only in the Chapter on Plan Outlays and Programmes of Development, a small paragraph on Animal Husbandry and Dairy Farming find its place. Here it has been acknowledged that there had been some delay in giving a start to the special livestock development programmes through small and marginal farmers and agricultural labourers. By and large, the targets under production oriented projects such as the intensive cattle development (ICD) projects were expected to be fully achieved. There were 85 subsidised projects for calf-rearing. It was envisaged that the emphasis would continue to be laid on cross-breeding of cattle through establishment of exotic cattle breeding farms and intensive artificial insemination measures.

3.7 *Sixth Five Year Plan*

3.7.1 While reviewing the position with regard to animal husbandry and dairying, the Sixth Plan document notes that the increase in productivity of cattle and buffalo received continuing emphasis since the advent of the Planning process and progressive introduction of artificial insemination technique using superior breeding bulls was the main plank for cattle development under the Key Village Scheme and the Intensive Cattle Development programmes.

3.7.2 The Plan document noted that several special livestock production projects through small and marginal farmers and agricultural labourers were formulated based on the recommendations of the National Commission on Agriculture. Under this programme, 99 projects for subsidised rearing of cross-bred heifer calves were taken up in different States.

3.7.3 The document speaks of the need to increase the productivity of cattle by making concerted efforts to contain the increase in the population of cows and she buffaloes and to change the structure of these populations by replacing non-descript local stock by high-producing cows of indigenous breeds, cross bred cows and improved buffaloes. To achieve this, States were required to frame their breeding policies.

3.8 ***Seventh Five Year Plan***

3.8.1 The Plan document for the Seventh Plan period speaks of the efforts to increase productivity of milch cattle in the previous Plan, through the establishment of 500 Key Villages and 122 Intensive Cattle Development projects. Cross-breeding with exotic dairy breeds was accelerated through the establishment of frozen semen stations in different States.

For increasing milk production and to improve draught power of bullocks, programmes for improvement of various breeds would continue, with emphasis on inputs like high merited breeding bulls, adequate and scientific feeding, modern management practices, provision of health facilities would continue and efforts would be made to bring at least 25 million cows under the cross-breeding programme.

3.9 ***Eighth Five Year Plan***

3.9.1 In the Plan for the Eighth Five Year Plan, the need for paying special attention to technologies being developed to make activities in the livestock and dairy development sector economically more remunerative for the farmers. Emphasis was sought to be given to research in frontier areas such as genetic engineering which would provide for rapid upgradation of cattle through the use of Embryo Transfer Technology, development of more effective vaccines to control livestock diseases and so on.

3.10 ***Ninth Five Year Plan***

3.10.1 The Ninth Plan paper documents a considerable improvement in production of milk during the previous Plan, which is attributed to the intensified activities particularly, in improvement of genetic stocks, through cross-breeding, effective control of diseases and the Operation Flood Programmes. The Ninth Plan sought to achieve the goals of doubling of food production and alleviation of hunger by adopting, for the first time a Regionall Differentiated Strategy based on the agro-economic and climatic conditions of differe regions.

3.10.2 Animal Husbandry and Dairying, contributing about 26% of the total agricultural output was recognised as an important tool for generating employment and supplementing incomes of small and marginal farmers and agricultural labourers. The specific areas identified for intervention and support included, scientific management of genetic stock resources and upgradation, breeding, producing quality feed and fodder and so on.

3.10.3 One of the key research areas identified under Animal Sciences discipline was Genetic resource enhancement of cattle and other animals, through selection / cross breeding / embryo biotechnology.

3.11 ***Proposals for the Tenth Five Year Plan (2002-2007)***

3.11.1 The major recommendations of the Report of the Working Group on Animal Husbandry set up by the Planning Commission for the Tenth Plan proposals, insofar as they relate to cattle development and breeding policies are as follows:

- A new programme focused exclusively on draught breeds of livestock may be initiated during Xth Plan.
- The National Project for Cattle and Buffalo breeding may be continued and the stipulations made for its implementation may be followed in letter and spirit to realize the envisaged targets. It is necessary that adequate budgetary support be provided to this scheme to enable sequential development of the breeding networks in a given time frame.
- A well defined livestock breeding policy is in place which states that pure indigenous well developed breeds should be improved through selection, while non-descript low producing populations should be improved by grading up with other superior indigenous breeds or crossbreeding with exotic males. It was observed that crossbreeding with exotic breeds is practiced even in home tract of elite important indigenous breeds. This is threatening the very existence of these breeds in their home tracts. It is recommended that the government should initiate steps to create incentives for breeding indigenous elite breeds and improve them through selection.
- An aggressive strategy is to be adopted to remove the hurdles in sourcing and use of quality bulls for breeding. Military dairy farms could be used as a major source of crossbred bulls. They can give 5,000-7,000 crossbred bulls every year for the national bull production programme.
- Monitoring cell for certification of sperm stations and A.I. bulls should be established in each state. Only certified semen should be used for A.I; where certification of semen is not possible, bulls may be used for breeding.
- Institutional arrangements for production and delivery of breeding inputs may be reviewed and restructuring as required may be adopted on priority basis. Government may withdraw gradually from the production and delivery of breeding inputs and create a congenial environment and play a supportive role for private operators to grow. Government should recover the delivery and input cost of A.I service on commercial basis. However, improved bulls for natural breeding could be distributed free of cost by the government for the benefit of poor farmers. Rearing of such bulls will be the responsibility of Panchayat / cooperative societies / NGO's.
- Field AI network (A.I. outlets), sperm stations, breeding farms and breeding programmes (Performance Recording, Progeny Testing, ONBs etc.) should constitute focal points for monitoring efficiency and progress.
- Rapid computerization of the breeding network needs to be done in order to build up a reliable database and effective monitoring through a Management Information System (MIS) both at State and national Level.

- Under the prevalent conditions in the country, the conventional method of producing progeny tested bulls has failed to achieve the desired results. Advance technologies like ETT and OPU-IVF should be used to support this programme.

4. Infrastructure for Cattle Development and Breeding

4.1 *Central Herd Registration Scheme*

4.1.1 The Government of India, through the Department of Animal Husbandry, is running this Scheme, which envisages the registration of elite cows and buffaloes of breeds of national importance. The Scheme awards incentives for rearing of elite cows and male calves and provides a superior quality germplasm for superior breeding.

4.1.2 The Herd Book is a list of each breed, with milk production records and breed characteristics. Through a process of certification, elite breeds of cattle are identified for further breeding on a large scale, resulting in breed multiplication of superior stocks. The Scheme has a significant role in assisting the State Departments of Animal Husbandry, private sector players and Government undertakings in the procurement of elite dairy cows and buffaloes and using their progeny of high genetic potential for use in the cattle development programmes.

4.1.3 The main objectives of the Central Herd Registration Scheme are:

- To locate superior germ plasm of indigenous breeds in breeding tracts.
- To introduce milk recording for further propagation.
- To regulate sale and purchase within the country and abroad.
- To propagate and awaken consciousness among the breeders for scientific breeding, development and preservation of cattle, which would improve their (breeders') socio-economic conditions.

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4.1.3 The CHRS Units are located in Rohtak (Haryana), Ahmedabad (Gujarat), Ajmer (Rajasthan) and Ongole (Andhra Pradesh). The indigenous cattle breeds covered by the Scheme are Gir, Kankrej, Haryana and Ongole

4.2 *Cattle Breeding farms*

4.2.1 Various breeds of national importance are being conserved at institutional and government farms in different parts of the country. A breed-wise list of the farms is given at **Annex VII (2)** of this Report. Cross-breeding Farms are at **Annex VII (3)** of this Report.

4.3 *Central Cattle Breeding Farms:*

4.3.1 For rearing bull mothers of different breeds, seven Central Cattle Breeding Farms (CCBF) were established from 1967 to 1975 at Suratgarh (Tharparker and its crosses with Holstein Friesian), Chiplima (Red Sindhi and its crosses with Jersey), Sunabeda (Jersey), Andeshnagar (Holstein Friesian X Tharparkar), Hesserghatta (Holstein Friesian), Dhamrod (Surti) and Alamadhi (Murrah).

4.3.2 The primary objective of the farms was to produce at least 10 progeny-tested bulls in each farm by maintaining about 300 breedable females. This objective was never achieved and the programme to produce progeny tested bull was abandoned in 1988. The other objectives like genetic improvement of bull mothers of important cattle and buffalo breed and supply of high pedigree bulls also failed to achieve the target. The Working Group on Animal Husbandry for the Tenth Plan has suggested that the goals of these farms should be changed and they should be used either for conservation of indigenous breeds which are at the verge of extinction or NDDB could take over these farms for implementing progeny testing programme using recent technologies like ETT /OPU-IVF.

4.4 Central Frozen Semen Production:

4.4.1 Central Frozen Semen Production and Training Institute established in 1969 at Hesserghatta is a premier Institute producing above 9 lakh doses of semen per year and imparting training to the field officers and veterinarians.

4.5 *National Project for Cattle and Buffalo Breeding (NPCBB)*

4.5.1 The Project came into being in October 2002 by merging two Centrally-sponsored Plan Schemes viz. i) Extension of Frozen Semen Technology and Progeny Testing Programme and ii) National Bull Production Programme

4.5.2 The salient features of the Project are:

- The National Project on Cattle and Buffalo Breeding is expected to facilitate delivery of vastly improved artificial insemination (AI) services at the farmer's doorstep.
- It is envisaged that all breedable females among cattle and buffalo population, would be brought under organized breeding within a period of 10 years.
- Genetic qualities and availability of indigenous breeds will be improved and important indigenous breeds will be preserved.
- 14000 AI practitioners are expected to be gainfully employed as a result of the project.

5. Cattle Breeding policy

5.1 According to the Working Group on Animal Husbandry for the Tenth Plan, the broad frame-work of cattle and buffalo breeding policy recommended for the country since the mid-sixties envisaged selective breeding of indigenous breeds in their breeding tracts and use of such improved breeds for upgrading of the non-descript stock. While the framework was accepted by the States, appropriate operationalisation of the same through field level programmes could not be done because of various reasons. Lack of interest in promoting Breed Organization / Societies and related farmers' bodies contributed to gradual deterioration of indigenous breeds. Majority of owners having indigenous breeds were not willing to accept AI, which was the major Government intervention for breed improvement. Eventually, the availability of good quality bulls needed for natural mating in the breeding tracts became scarce, leading to further deterioration of indigenous breeds in these tracts.

5.2 The Working Group further observes that large deviation from the laid breeding policy has occurred, which is quite obvious from the fact that crossbreeding which was to be taken up in a restricted manner and in areas of low producing cattle has now spread indiscriminately all over the country including in the breeding tracts of some of the established indigenous cattle breeds. Keeping In view current concerns for sustainability, maintaining environment and bio-diversity and conservation of energy, there is a rethinking on the development and use of indigenous breeds for milk and draught. The country since then has advanced in the area of newer reproductive technologies, which can be of tremendous advantage for rapid multiplication of elite germplasm. Therefore, a fresh look at the breeding policy is needed. The policy needs to be dynamic and consider, inter-alia, the demand for milk, requirement of draught animal power for agricultural and transportation purposes, need to conserve breeds in their breeding tracts, farming systems, production environments and availability of inputs as well as marketing channels. If such a policy does not exist, the same has to be evolved and followed consistently for a reasonable period, say twenty years, after which the policy may be reviewed.

5.3 As regards Breeding Strategies, the Working Group felt that programmes for genetic improvement undertaken in the past were not successful, particularly those relying on upgradation of indigenous breed through continuous crossbreeding for lack of backup support in the feed and fodder resources. However, in States like Punjab, where average milk production of 2500 litre per lactation in crossbred cows can be achieved under field conditions, substantial progress been made.

5.4 Since most of the female stock is needed for herd replacement, accurate selection of sires assumes greater importance. But a feasible cost effective and proven method for general adoption in the country is yet to emerge. Any programme for genetic improvement needs an organization/set-up that goes beyond the individual/herd. Absence of breeders' organizations and field recording network are serious handicaps in the emergence of viable and effective Breeding Service Organizations. Genetic measures undertaken to improve livestock will not be successful unless the livestock production system as a whole is considered. Availability of inputs and support services, marketing channels and economic viability will have to be considered as an important component of the whole system. Rapid genetic changes in livestock population for efficient commercial production will have to be brought about by a carefully planned and monitored process. Conditions congenial to private initiatives to aid the process for faster improvement in productivity will assume paramount importance because the central and state governments may not be in a position to provide financial support for programmes in the long run.

5.5 The Working Group further states that the efforts would need greater attention because breeding is a cost intensive, long-term exercise with a time horizon of 15 years in India. Unless those who undertake such breeding programmes do not have a full control over various facets involved for this period, they run the risk of wasting time, effort and resources. If livestock development sector is to be successful, in terms of generating income to farmers, returns to government expenditures, and in value addition in international prices, the focus of policy will have to shift from the "best" technology to the most productive technology that is appropriate for different regions and is in tune with their natural endowment and labour and capital resources.

5.6 Further, the adoption of appropriate breeding programmes and technology will result in accumulation of comprehensive field data on farmers' preferences, productivity of animals, cost of feed and other inputs, animal responses to nutrition, and other similar biological factors. A major systematic effort in this direction is required if an all round sustainable genetic improvement of cattle and buffalo is to be effected in the country.

6. Breeding Policies in the States

Questionnaire

6.1 The Commission had sent out a detailed questionnaire to elicit information from the State Governments, NGOs and other institutions on various aspects of the issues given to it for examination in its terms of reference. The questions relevant to breeding, numbered 19 to 30, are reproduced below:

Extract from questionnaire

BREEDING

19. Does the State have a breeding policy for cattle? If so, please list its salient features. Attach a copy of the Policy document, if any.

20. Is the breeding policy tilted in favour of increasing the number of buffaloes in relation to that of the cattle?

21. Do you feel that farmers find it more profitable to keep buffaloes? If so, what do you think are the reasons? Is it because of the higher fat content of buffalo milk or the fact that buffaloes can be slaughtered for the meat and hides or both?

22. What are the major indigenous breeds of cattle prevalent in the State?

23. List the major features, strong points and parameters like milk yield, breed-wise.

24. Has there been a decline in the numbers of any of these breeds? Have any breeds become extinct or are nearing extinction? If so, name them, with numbers to show this finding.

25. What are the reasons for the decline, if any, in the numbers of indigenous breeds? What could be done to conserve and protect these breeds?

26. Is the State participating in the recently launched National Project of Cattle and Buffalo Breeding of the Central Government? If so, what are the projections / targets etc. envisaged? Please give details for cattle and buffalo separately.

27. Do you feel that the Project will fulfill its objectives? Have you any suggestions for improving the procedures, delivery systems and implementation of this Project.

28. Do you feel that artificial insemination is the best way of conserving or propagating indigenous breeds? What do you believe are the comparative advantages of artificial insemination over natural service or vice versa?

29. Do you believe that India should conserve its indigenous breeds (which have lower productivity but higher resistance to disease) rather than go in for massive cross-breeding with foreign strains to increase the milk-yield per animal, even though these breeds have less resistance to disease?

30. Do you feel that Integrated Livestock Projects, where farmers or farmers' groups maintain different species of animals such as cows, buffaloes, goats, sheep, poultry is a good measure for income generation, poverty alleviation in rural areas?

Answers of the State Governments

6.2 The answers to the question in serial order of the respective State Governments, who had submitted their filled-in questionnaires are given in statement at **Annex VII (4)**.

7. Summary of Information provides by the States in answer to the questions on Breeding and other related issues

7.1 *Breeding Policy*

In answer to question No. 19, most of the States have indicated that they have a more or less well-defined Breeding Policy, with the main features being in consonance with the Central Policy, advocating cross-breeding in certain areas only with the exotic inheritance being limited to 50% in most cases and going up to 62.5% in a few cases. Goa does not have a Breeding Policy and Jharkhand is yet to evolve its policy. Mizoram does not have a Policy as such, but does have a Breeding Programme.

7.2 *Tilt towards buffaloes*

In answer to question No. 20, all the States, with the notable exception of Haryana have stated that there is no tilt in the breeding policy in favour of increasing buffalo population. Harayana has stated that because farmers prefer buffaloes there is an emphasis on increasing buffalo numbers in their policy and programme.

7.3 *Reasons for decline –preference for buffaloes?*

Responding to question No. 21, almost all the States have stated that farmers prefer to keep buffaloes due to various reasons ranging from easy manageability, high fat content of milk and availability for slaughter for meat and hides.

7.4 *Important indigenous breeds*

Questions No. 22 and 23 relate to the important indigenous breeds prevalent in various States and their main characteristics. Some States like Bihar, North Eastern States and

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Hilly areas do not have any recognised cattle breeds but have non-descript local varieties, which are being upgraded to increase milk yield by crossing with exotic breeds and some indigenous breeds as well.

7.5 *Decline in numbers and reason; suggestions*

In answer to Questiond 24 and 25, regarding decline if any in important breeds, several States have informed that the indigenous breeds are declining in numbers. For example, in Andhra Pradesh, Ongole pure-bred population is decreasing and the Punganur breed has almost vanished. Similarly, Haryana informs that the Sahiwal population has dwindled and Amritmahal in Karnataka is also reported to be declining in numbers. In Kerala, the Vechoor cow was almost on the verge of extinction and a programme for its conservation had to be launched by the Kerala Agriculture University at Thissur. The reasons given for the decline vary from indiscriminate cross-breeding to lack of grazing facilities, poor economics of maintaining some of the breeds and so on. Regarding the need for conservation of important indigenous breeds, most States have answered in the affirmative. Some States like Andhra Pradesh have given suggestions for conservation and improvement for important breeds like Ongole.

7.6 *National Project for Cattle and Buffalo Breeding*

As regards participation in the National Project for Cattle and Buffalo Breeding, in response to Question No. 26, all the States have indicated that they are participating. Union Territory of Chandigarh is not participating in this Project. Most States feel that the Project will fulfill its objectives, although a few States have refrained from commenting at this stage.

7.7 *Artificial Insemination versus Natural Service*

The States have been unanimous in stating that Artificial insemination has distinct advantages over natural service, being more cost-effective, hygienic and easy to deliver at farmer's doorstep. For remote areas, where AI facilities are not available, Natural Sevice has been recommended.

7.8 *Conservation of inidigenous breeds vis-a-vis cross-breeding with exotic breeds*

The general feeling is that it is very important to conserve the important indigenous breeds of cattle, especially in their respective breeding tracts. However, a judicious mix of cross-breeding with exotic breeds has also been recommended, mainly for improving milk yields, especially of non-descript breeds, for some areas. The optimum level of exotic blood has mostly been recommended at 50%.

7.9 *Integrated Livsestock Projects as instruments of poverty alleviation*

Most of the States feel that such Projects are the best tools for alleviating poverty and providing income generation, especially in rural areas.

8. Need for conservation of Cattle Genetic Resources

8.1 As stated earlier, India has rich and diverse genetic resources, with some of the best breeds of dairy, draught and dual-purpose cattle being available. Despite the large number of good breeds, more than 80% of the cattle population belongs to the non-descript category. The important breeds are essentially the result of long-term natural selection and evolution over the centuries and are better adapted to withstand tropical diseases and perform reasonably well even with low inputs in terms of feed and fodder. There are 28 recognised cattle breeds as detailed earlier. An increase in the cross-bred population has been seen over the years.

8.2 It is apparently quite a paradox that, despite our huge population of cattle, there should be a need for conservation of breeds in India. This need has arisen owing to deterioration in the population due to inadequate inputs, dilution of breeds due to inter-mixing, indiscriminate infusion of exotic germplasm for cross-breeding for enhancing milk production, absence of specific strategies and programmes for conservation of indigenous breeds and loss of breeds due to geographical re-organisation. Breeding tracts and organised farms of some of the established breeds such as Sahiwal, Red Sindhi and Tharparkar have been lost to Pakistan, for example.

8.3 On account of the prospects of quick economic gains, cross-breeding has encroached into even the native tracts of superior indigenous breeds, which has led to dilution of these breeds, some of which are threatened and heading toward extinction, if no action is taken to arrest this trend.

8.4 Even in the cross-bred strains, genetic stabilization is yet to take place as there is a very long and complex process. The effect of these changes on native breeds is to be studied in great detail, which has not been done so far. The male calves of crossbred cattle are generally considered by the farmer as inferior as they are not useful as draught animals. These calves are neglected and starved to death, or more often than not, sold for slaughter for meat and hides, illegally in most States. Since the question of sex determination and selection in cattle is not likely to arise in the Indian context, this is a serious problem that has to be addressed.

9. National Cattle Breeding Policy

9.1 As has been seen from examination of the successive Plan documents, the Planners had envisaged, over the years, the breeding policy for cattle was generally designed to increase the production of milk in the country, at the same time ensuring that the requirements for draught breeds for agricultural ploughing and transportation in rural areas, was adequately met. From the mid-sixties onwards, cross-breeding with foreign exotic strains was introduced on a fairly large scale, mainly to enhance production of milk.

9.2 On the basis of the recommendations of the National Agricultural Commission, a National Breeding Policy was evolved, which inter alia suggested:

i) Development of nationally important indigenous breeds of cattle, both for draught and dual purposed through selective breeding in their home tracts.

ii) Cross-breeding of low producing non-descript cattle with exotic dairy breeds.

iii) Continue inter se breeding among cross-bred cattle using pedigreed / proven bulls.

9.3 State Governments were required to develop region-specific strategies and detailed district breeding plans, in consonance with the national breeding policy. The fact that there is a distinct depletion in the resources and numbers of recognised indigenous breeds, which now constitute perhaps only 20% of the total cattle population, maybe even less, indicates that the respective State Governments have not been successful in conserving and preserving the good indigenous genetic germplams.

RECOMMENDATIONS OF THE COMMITTEE

The following are the recommendations of the Committee on Breed Improvement and Preservation.

1. Breeding Policy:

As stated above the broad features of the national breeding policy have been laid down. From sixties onwards there have been directions to State Governments to take measures to conserve the important national breeds. At the same time cross-breeding has been recommended as a major tool for increasing milk production.

The Committee makes the following recommendations in this regard:

- The Government should review its breeding policy and provide more emphasis to conservation of indigenous breeds. If required, a separate policy for conservation of indigenous cattle breeds and their germplasm should be drawn up and translated into an implementable programme.
- Cross-breeding with exotic strains should be totally banned in the home tracts of the important cattle breeds and the ban should be strictly got implemented by the State Governments.
- A judicious mix of cross-breeding with exotic strains and preservation of indigenous germplasm should be maintained, while formulating the policy. Import of germplasm should be allowed only in very specific cases and after taking all the precautions to prevent the ingress of diseases into the country.

2. Implementation of the Breeding Programmes:

The broad outlines of the breeding policy are normally laid down for the State Governments to follow. While there has been a clause prescribing conservation of the important native breeds, especially in their home breeding tracts, no follow up or monitoring is being done at the field level. While the Central Government has been recommending, since the sixties, that steps and measures should be taken to conserve Indian indigenous breeds, this has not been translated into programmes and activities on a sufficient scale, by the State Governments. Some State Governments have prepared breeding strategies and regional plans, and have also identified the areas of breeding tracts for different breeds, on the ground these strategies have not actually translated into proper programmes and plans of action, which could achieve the desired results.

The Committee therefore recommends that:

- A proper institutionalised monitoring mechanism be established from the Centre downwards, so that the implementation of the Breeding Policy directives is monitored closely.
- Directions should be given to the State Governments to draw up region-specific and breed-specific breeding strategies, programmes and plans to implement the conservation programme.

- Targets should be allocated to the concerned State Governments, in terms of actual numbers of cattleheads of the particular breed, infrastructure facilities such as sperm stations, bull farms etc.

- Regular review meetings should be held to consider the results achieved in terms of the physical and financial targets achieved, and corrective action taken wherever the targets are not met.

- The Centre in turn should provide adequate funding to the State Governments to implement the programmes and annual plans. Other sources of funding should also be tapped. (For example, the Haryana Government is reportedly collecting Rs.0.10 per litre of milk from Gopalaks / milk producers and the money goes into a fund, which is used to supplement the efforts for breed improvement. The Government expects to collect Rs.14 crore through this method).

3. Creation of scope for larger use of indigenous cattle breeds:

All the policy prescriptions and guidelines issued by the Centre had elements for conservation of indigenous breeds, their selective breeding for genetic improvement and use of indigenous breeds for upgrading low producing non-descript cattle in resource-poor areas. However, introduction of cross-breeding with exotic cattle even in such areas has seriously limited the scope of use of bulls of indigenous cattle breeds outside their breeding tract.

The Committee therefore recommends that:

- The States should be directed to specifically delineate and identify, in their respective breeding policies, the geographical boundaries of the areas where non-descript cattle should be upgraded by crossing with bulls of indigenous breeds.

- Once such areas are earmarked, no cross-breeding of non-descript cattle, other than with bulls of indigenous breeds, should be permitted. This measure will provide an incentive to the farmers in the breeding tracts to rear male stock of indigenous breeds up to the breeding age, as the demand will create a market for the bull semen or natural service. Consequently, the practice of disposing off the male calves for slaughter will be curbed to a large extent.

4. Supply of good quality breeding material in the breeding tracts

Due to, sometimes indiscriminate, cross-breeding, there has been a general lack of emphasis on selective breeding in the breeding tracts. The supply of good quality germplasm, to match the quality of breeding females, has also been lacking. Conservation efforts have mostly been limited to institutional farms with small herd sizes, leaving larger parts of the breeding tract totally neglected. This cannot be really termed as conversion in its true sense and, more or less, amounts to only providing lip-service for the cause.

The Committee, therefore, recommends the following:

- The status of the indigenous breeds needs to be evaluated afresh. This is not only because the composition of cattle in the breeding tract has changed, even the specimens and genetic make-up of the breeds have undergone changes over the past few decades.

- Breeds, which no longer find favour with the farmers, whatever the reason may be, should be identified and these breeds should be preserved only in the institutional farms, with improved conservation technologies.

- Breeds, which are accepted by the common farmer, should be developed through region-specific and breed-specific programmes, aimed at selection in the breeding tracts and supply of improved quality of germplasm for breeding of cattle for supply to farmers on demand.

- The progress of such programmes should be monitored through the institutional mechanism, recommended above to be set up.

- For sourcing cross-bred bulls, the Military dairy farms should be used as a major source of contribution to the Bull production programme.

5. Promotion of Breeders' Organisations

Presently, the conservation of indigenous breeds is mainly in the domain of the Government and semi-Government agencies. Instances of owners of specimens of indigenous breeds forming an association to articulate the specific needs and demands for improvement of the particular breed are conspicuous by their absence. In contrast, breeders in other countries form strong proactive groups, which lobby for furthering their interests, as for example, the Brahman Breeders Association in USA. As Government moves towards privatisation in various sectors, cattle and livestock breeding should be encouraged in the private sector, with Government playing a facilitating role and providing infrastructural inputs, wherever required.

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The Committee recommends that:

- Government should encourage and promote the organisation and establishment of breed-specific associations to represent the requirements for development of particular indigenous breeds.

- Such Associations can then form a Federation at the apex level to take up issues with the Government either at the State or Central level.

- Government should accept the private sector players as partners in the efforts towards conservation of Indian breeds of cattle and achieve better results by involving them in a participatory manner.

6. Enhancing the role of voluntary organisations - NGOs

There are a large number of Goshalas and, to a lesser extent perhaps, Gosadans and Pinjrapoles, which have quite sizeable populations of excellent specimens of various indigenous breeds. However, efforts made by such agencies towards conservation, are more often than not, not based on scientific methodologies. The efforts are also diluted by efforts towards supporting old, diseased and destitute animals, mostly of non-descript breeds. At present the terminologies of Goshalas, Gosadans and Pinjrapoles are often loosely used and are inter-changeable at will.

The Committee makes the following suggestions / recommendations:

- An inventory of Goshalas / Gosadans / Pinjrapoles having good specimens of indigenous breeds of cattle should be drawn up, alongwith the details and numbers of cattle-heads.

- Such organisations should be designated with some appellation, which would distinguish them from other organisations maintaining other non-descript, aged or infirm cattle. For want of a better name, maybe the term 'Goshala' could be used, with other organisations, not having the indigenous specimens, being termed as Gosadans or Pinjrapoles only.

- Each such designated organisation should adopt only one or two breeds, depending on the strength and composition of their herds, and segregate them from the other cattle, which they may like to continue to maintain as part of their animal welfare role. A specific breed-improvement/conservation programme should be drawn up for each designated organisation in consultation and collaboration with Government agencies.

- Such organisations can also participate in the Government-sponsored programmes for rearing of male calves from weaning to maturity, for breeding purposes. The male calves on becoming bulls can then be supplied to farmers and other clients in the breeding tracts for mating with breedable females and for upgrading non-descript breeds in other areas.

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- The designated organisations should also be provided with scientific and technical inputs and training for genetic evaluation and selection of germplasm for breed improvement and upgradation programmes.

7. Use of Science and Technology

Since the advent and introduction of cross-breeding in the country, most of the techniques and methodologies for breed improvement have been used to produce cross-bred cattle. The application of such technologies for propagation and improvement of indigenous breeds, is a relatively rare phenomenon, one of the reasons for which may be the reluctance of the farmers, owning these breeds to accept modern methods and techniques for reproduction.

The Committee recommends that:

- Scientific and technological intervention in breeding programmes should be urgently taken up as a priority by the concerned Governmental agencies.

- Technologies such as artificial insemination, frozen semen production, progeny-testing, embryo transfer technology (ETT) should be used, after proper evaluation, wherever required, so that modern up-dated scientific methods can be used to give a fillip to the programme for conservation, preservation and upgradation of breeds.

- The comparative advantages of Artificial Insemination and Natural Service, should be studied and the appropriate method should be adopted according to the specific needs, requirements and location of different areas.

- Monitoring cells for certification of sperm stations and bulls for frozen semen, should be established at the State levels and only certified semen should be used for AI, as suggested by the Working Group on Animal Husbandry set up for the Tenth Plan proposals.

8. Statistical Date Base

Last, but by no means the least, the Committee would like to comment on the availability of data, or rather the lack of such availability, especially in the context of the breed improvement and conservation programme. The quinquennial Livestock Census, conducted by the Directorate of Economics and Statistics, Department of Agriculture and Cooperation suffers from all kinds of qualitative and quantitative problems, apart from lack of timeliness. While the 2002 Census is to take place, the data from the 1997 Census is still to be fully compiled and report prepared. Moreover, disaggregated data regarding particular indigenous breeds has not been collected.

The problems of lack of timely and quality data are further compounded by lack of perception of the data-collectors while categorising the breeds and quantifying their performances, particularly in the Integrated Sample Survey for Estimation of Production of Major Livestock Products, which is conducted by the Department of Animal Husbandry of the Central Government, through their counterparts in the States. For example, there is a tendency to club both non-descript and good indigenous cattle breeds into a single category of indigenous cattle, resulting in distortions while recording parameters such as average productivity etc. There is also a lack of perception about the maximum and average productivity of crossbred cattle in various production environments. This has created the general notion that all indigenous cattle are poor yielders of milk and the average cross-bred is superior. On the contrary, the limited information available goes to indicate that quite a sizeable number of dairy cattle of indigenous breeds show much higher productivity than the average cross-bred cattle. This is corroborated by the production records available for indigenous breeds at selected Gaushalas, military farms, as well as by field samples, which often indicate much higher productivity of indigenous cattle than is shown in the results of the Integrated Sample Survey for estimation of milk production. The

Committee, therefore, suggests the following:

- A reliable data base should be developed with regard to all the details of indigenous breeds, including their breeding tracts, numbers, characteristics, genetic make-up, germplasm, the institutional farms where they are being preserved and / or conserved and so on.

- Data bases should also be developed with regard to non-descript , as well as cross-bred cattle.

- A proper distinction should be made in nomenclature and classification of indigenous breeds, especially the recognised breeds, separating them from non-descript varieties. This classification should be communicated to the data collectors at the filed level so that estimates of milk yield and other production data can be correctly collected.

- The Livestock Census must be conducted in a timely manner and, more importantly, the results compiled quickly. Results which come five years after the date of the census become meaningless for policy formulation and serves only as historical data. It is understood that a decision has been taken in principle to transfer the Livestock Census work to the Department of Animal Husbandry, but the staff and other infrastructure are yet to be provided. If this is so, the Committee recommends that the steps be taken for timely conduct of the transfer or there is a danger of the Census itself falling between two stools.

- While taking the Cattle census, the data-collecting agency should also gather details about the indigenous breeds, such as the name of the breed to which the specimen belongs, age, productivity etc.

- If it is not feasible to collect the detailed data through the Livestock Census, which is conducted by laymen, as is the population census, a special Cattle Census should be got conducted in all the States, especially in the major cattle populated areas and breeding tracts to collect all the details.

- The data of the Cattle Census should be fed into the data-base and then up-dated from time to time through surveys and other statistical methods for data collection.

- A breeding network should be set up by computerising and net-working all AI outlets, sperm stations, breeding farms and Goshalas and other agencies involved in the production of breeding material and implementation of breeding programmes. Activities such as performance recording, progeny testing, herd registration and sperm certification should all be computerised and connected with each other through the network.

- Monitoring of all aspects and facets of the breeding activities should also be done through use of the computerised mechanisms and networks.

Acknowledgement:

The Member Secretary would like to place on record her gratitude to the officers of the Department of Animal Husbandry & Dairying and other Government Departments, who provided inputs for the preparation of this Report. In particular, Dr. Batobayal, Director (LP) deserves particular thanks for his technical inputs.

Most of the details have been obtained from the web-site of a South African organisation called Embryo Plus, viz. http://www.embryoplus.com/cattle)

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ANNEXES

CHAPTER III

ADMINISTRATION OF CATTLE LAWS

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LIST OF ANNEXES

CHAPTER III

ADMINISTRATION OF CATTLE LAWS

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ANNEX III (1)

Paragraph 4

LIST OF LAWS ENACTED BY STATES FOR COW PROTECTION

S. No.	State/Title of Legislation
1	**ANDHRA PRADESH** THE ANDHRA PRADESH PROHIBITION OF COW SLAUGHTER AND ANIMAL PRESERVATION ACT, 1977
2	**ASSAM** THE ASSAM CATTLE PRESERVATION ACT, 1950
3	**BIHAR** THE BIHAR PRESERVATION AND IIMPROVEMENT OF ANIMALS ACT, 1955
4	**DAMAN & DIU** THE GOA , DAMAN & DIU PREVENTION OF COW SLAUGHTER ACT, 1978
5	**DELHI** THE DELHI AGRICULTURAL CATTLE PRESERVATION ACT, 1994
6	**GOA** THE GOA, DAMAN & DIU PREVENTION OF COW SLAUGHTER ACT, 1978. AND THE GOA ANIMAL PRESERVATION ACT, 1995
7	**GUJARAT** THE BOMBAY ANIMAL PRESERVATION ACT, 1954 (APPLIED TO GUJARAT)
8	**HARYANA** THE PUNJAB PROHIBITION OF COW SLAUGHTER ACT, 1955 (APPLICABLE TO HARYANA)
9	**HIMACHAL PRADESH** THE PUNJAB PROHIBITION OF COW SLAUGHTER ACT, 1955 (APPLICABLE TO THE STATE OF HIMACHAL PRADESH)
10	**JAMMU & KASHMIR** THE RANBIR PENAL COURT, 1932
11	**KARNATAKA** THE KARNATAKA PREVENTION OF COW SLAUGHTER AND CATTLE PRESERVATION ACT, 1964
12	**KERALA** No state legislation - only Panchayat Act / Rules

13.	**MADHYA PRADESH** THE MADHYA PRADESH AGRICULTURAL CATTLE PRESERVATION ACT, 1959.
14.	**MAHARASHTRA** THE MAHARASHTRA ANIMAL PRESERVATION ACT, 1976
15.	**MANIPUR** PROCLAMATION BY MAHARAJA DARBAR RESOLUTION OF 1936
16.	**MEGHALAYA** NO LEGISLATION
17.	**NAGALAND** NO LEGISLATION
18.	**ORISSA** THE ORISSA PREVENTION OF COW SLAUGHTER ACT, 1960
19.	**PONDICHERRY** THE PONDICHERRY PREVENTION OF COW SLAUGHTER ACT, 1968
20.	**PUNJAB** THE PUNJAB PROHIBITION OF COW SLAUGHTER ACT, 1955
21.	**RAJASTHAN** THE RAJASTHAN BOVINE ANIMAL (PROHIBITION OF SLAUGHTER AND REGULATION OF TEMPORARY MIGRATION OR EXPORT) ACT, 1995
22.	**TAMIL NADU** THE TAMIL NADU ANIMAL PRESERVATION ACT, 1958 AND Government orders banning cow slaughter dt. 30th august, 1976.
23.	**UTTAR PRADESH** THE UTTAR PRADESH PREVENTION OF COW SLAUGHTER ACT, 1955
24.	**WEST BENGAL** THE WEST BENGAL ANIMAL SLAUGHTER ACT, 1950

ANNEX III (2)

Paragraph 5

Central Laws relating to Prevention of Cruelty to Animals - Extracts

There are certain provisions in the Central Laws in the matter of cruelty to animals including cattle. Those laws are as under :

1. Section 429 of the Indian Penal Code

> **429. Mischief by killing or maiming cattle, etc. of any value or any animal of the value of fifty rupees** - Whoever commits mischief by killing, poisoning, maiming or rendering useless, any elephant , camel, horse, mule, buffalo, bull, cow or ox, whatever may be the value thereof, or any other animal of the value of fifty rupees or upwards, shall be punished with imprisonment of either description for a term which may extend to five years, or with fine, or with both.

Prevention of Cruelty to Animal Act 1960

The main provisions of this act are as under -

Sec 11. **Treating animals cruelly**- (1) If any person;

(a) Beats, kicks, over-rides, over drives, over loads, tortures or otherwise treats any animal so to subject it to unnecessary pain or suffering or causes, or being the owner permits, any animal to be so treated; or

(b) Employs in any work or labour or for any purpose any animal which by reason of its age or any disease, infirmity wound, sore or other cause, is unfit to be so employed or being the owner, permits any such unfit animal to be employed; or

(c) Wilfully and unreasonably administers any injurious drug or injurious substance to any animal or wilfully and unreasonably causes or attempts to cause any such drug or substance to be taken by any animal or

(d) Coveys or carries, whether in or upon any vehicle or not, any animal in such a manner or position as to subject it to unnecessary pain or suffering or

(e) Keeps or confines any animal in any cage or other receptacle which does not measure sufficiently in height, length and breadth to permit the animal as reasonable opportunity for movement; or

(f) Keeps for an unreasonable time any animal chained or tethered upon an unreasonable heavy chain or cord; or

(g) Being the owner, neglects to exercise or cause to be exercised reasonably any dog habitually chained up or kept in close confinement; or

(h) Being the owner of any animal fails to provide such animal with sufficient food, drink or shelter ; or

(i) Without reasonable cause, abondons any animal in circumstances which render it likely that it will suffer pain by reason of starvation or thirst ; or

(j) Wilfully permits any animal, of which he is the owner to go at large in any street, while the animal is affected with contagious or infectious disease or, without reasonable excuse permits any diseased or disabled animal, of which is he the owner to die in any street ; or

(k) Offers for sales or without reasonable cause has in his possession any animal which is suffering pain by reason of mutilation, starvation, thirst, overcrowding or other illtreatment; or

(l) Mutilates any animal or kills any animal (including straydogs) by using the method of strychnine injections in the heart or in any other unnecessarily cruel manner or ;

(m) Solely with a view to providing entertainment

  (i) confines or causes to be confined any animal (including tying of an animal as a bait in a tiger or other sanctuary) so as to make it an object of prey for any other animal; or

  (ii) incites any animal to fight or bait any other animal; or

(n) Organises, keeps, uses or acts in the management or any place for animal fighting or for the purpose of baiting any animal or permits or offers and place to be so used or receives money for the admission of any other person to any place kept or used for any such purposes ;or

(o) Promotes or takes part in any shooting match or competition wherein animals are released from captivity for the purpose of such shooting.

He shall be punishable in the case of a first offence with fine which shall not be less than ten rupees but which may extent to fifty rupees and in the case of a second or subsequent offence committed within three years of the previous offence. with fine which shall not be less than twenty five rupees but which may extend to one hundred rupees or imprisonment for term which may extend, to three months, or with both.

(2) For the purpose of section (1) an owner shall be deemed to have committed an offence if he failed to exercise reasonable care and supervision with a view to the prevention of such offence provided that where an owner is convicted permitting cruelty by reason only of having failed to exercise such care and supervision he shall not be liable to imprisonment without the option of a fine.

(3) Nothing in this section shall apply to

(a) The dehorning of cattle: or castration or branding or nose roping of any animal in the prescribed manner ; or

(b) The destruction of stray dogs in lethal chambers or (by such other methods as may be prescribed) or

(c) The Extermination or destruction of any animal under the authority of any law for the time being in force ; or

(d) any matter dealt with in chapter IV : or

(e) the commission or omission of any act in the course of the destruction or the preparation for destruction of any animal as food for mankind unless such destruction or preparation was accompanied by the infliction of unnecessary pain or suffering:

Sec. 28 Nothing contained in this Act shall render it an offence to kill any animal in a manner required by the religion of any community.

Clause (e) of sub section (3) of sec 11 permits destruction or preparation for destruction of any animal as food for mankind without inflicting of unnecessary pain or suffering and sec. 28 has removed the condition of non inflicting unnecessary pain or suffering in case it is required by religion of any community, defeating the very purpose of enacting the Prevention of Cruelty to Animal Act. This seems to have been done under pressure of the butchers who use to slaughter the animals by 'HALAL' method inflicting unbearable pain and suffering to the animals. It is against the spirit and letter of the Constitution of India. Clause (g) of Article 51-A of the Constitution lays down that it shall be the duty of every citizen of India to have compassion for living creatures. Article 48 lays down that the State shall endeavour to take steps for prohibiting the slaughter of cows and calves and other milch and draught cattle. The States have enacted Prevention of Cows Slaughter Acts. Clause(e) of Sec (3) of Sec 11 should be amended to exclude therefrom the cow and its progeny and other milch and draught animals as mentioned in Article48, Sec 28 should be deleted. penalty should be enhances at least 100 times to match the decreased value of rupee at present.

Sec. 29 (i) If the owner of any animal is found guilty of any offence under this Act the court upon his conviction thereof. may if it thinks fit, in addition to any other punishment, make an order that the animal with respect to which the offence was committed shall be forfeited to Government and may, further make such order as to the disposal of the animal as it thinks fit under the circumstances.

(2) No order under Sub Section (1) shall be made unless it is shown by evidence as to a previous conviction under this Act or as to the character of the owner or otherwise as to the treatment of the animal that the animal, if left with the owner is likely to be exposed to further cruelty.

(3) Without prejudice to the provision contained in sub section (i) the court may also order that a person convicted of an offence under this Act shall either permanently or during such period as is fixed by the order be prohibited from having the custody of any animal of any kind whatover, or as the court thinks fit of any animal of any kind or species specified in the order

(4) No order under sub section (3) shall be made unless it is shown by evidence as to a previous conviction or as to the character of the person or otherwise as to the treatment of the animal in relation to which he has been convicted that an animal in the custody of the said person is likely to be exposed to cruelty ;

(b) It is stated in the complaint upon which the conviction was made that it is the intention of the complaint upon the conviction of the accused to request that an order be made as aforesaid and;

(c) the offence for which the conviction was made was committed in an area in which under the law for the time being in force a licence is necessary for the keeping of any such animal as that in respect of which the conviction was made.

(5) Notwithstanding anything to the contrary contained in any law for the time being in force, any person in respect of whom an order is made under sub-section (3) shall have no right to the custody of any animal contrary to the provisions of the order and if he contravenes the provisions of any order, he shall be punishable with fine which may to one hundred rupees, or with imprisonment for a term which may extend to three months, or with both.

(6) Any court which has made an order under sub-section (3) may at any time, either on its own motion or on application made to it in this behalf, rescind or modify such order.

Rules under Prevention of Cruelty to Animal Act 1960

Rule 3 - Maximum load for draught animal - (1) No person shall cause any animal specified in column 1 of the table below to draw a vehicle of the kind described in the corresponding entry in column 2 thereof if it carries a load in excess of the weight specified in the corresponding entry in column 3 thereof.

	2	3
1. Small bullock or small buffalo	Two wheeled vehicle- (a) If fitted with ball-bearing	1000 Kg.
	(b) if fitted with pneumatic tyres	750 kg.
	(c) if not fitted with pneumatic tyres	500kg.
2. Medium bullock or medium buffalo	(a) if fitted with ball bearing	1400 kg
	(b) if fitted with pneumatic tyres	1050 kg.
	(c) if not fitted with pneumatic tyres.	700kg.
3 Large bullock or large buffalo	Two wheeler vehicle- (a) if fitted with ball bearing	1800 kg.
	(b) if fitted with penumatic tyres	1350 kg.
	(c) if not fitted with pneumatic tyres	900 kg.

Rule 4 - Maximum Load for certain pack animals- No person shall cause any animal specified in column 1 of the table below to carry any load in excess of the weight specified in the corresponding entry in column 2 thereof.

1	2
1. Small bullock or buffalo	100 kg.
2. Medium bullock or buffalo	150 kg.
3. Large bullock or buffalo	175 kg.

Rule 5 - Maximum number of passengers for animal drawn vehicles - No person in charge or any vehicle drawn by any animal referred to in cloumn 1 of the table under sub-rule (1) of rule 3 shall allow more than four persons, excluding the driver and children below 6 years of age, to ride on the vehicle.

Rule 6 - General conditions for use of draught and pack animals - No person shall use or cause to be used any animal for drawing any vehicle or carrying any load

(i) for more than nine hours in a day in the aggregate;

(ii) for more than five hours continuously without a break for rest for the animal

(iii) in any area where the temperature exceeds 37'C (99' F) during the period between 12.00 noon and 3.00 P.M.

Rule 7 - Animal to be disengaged after work - No person shall continue to keep or cause to be kept in harness any animal used for the purpose of drawing vehicles, after it is no longer needed for such purpose.

Rule 8 - Use of spiked bits prohibited - No person shall for the purpose of driving or riding an animal or causing it to draw any vehicle or for otherwise controlling it, use any spiked stick or bit, harness or yoke with spikes knobs or projection or any other sharp tackle or equipment which causes or is likely to cause bruises, swellings, abrasions or severe pain to the animal.

Transport of Animal Rules 1978

Transport of Cattle

Rule 46 - Rules 47 to 56 apply to the transport by rail or road of cows bulls, bullocks, buffaloes, yaks and calves (hereinafter in these rules referred to as Cattle)

Rule 47 - (a) A valid certificate by a qualified veterinary surgeon to the effect that the cattle are in fit condition to travel by rail or road and are not suffering from any infectious or contagious or parasitic diseases and that they have been vaccinated against rinderpest and any other infectious or contagious or parasitic disease shall accompany each consignment,

(b) In the absence of such a certificate, the carrier shall refuse to accept the consignment for transport.

(c) The certificate shall be in the form specified in schedule-E.

Rule 48 - Verterinary first-aid equipment shall accompany all batches of cattle.

Rule 49 - (a) Each consignment shall bear a label showing in bold red letters the name, Address and telephone number (if any) of the consignor and consignee, the number and type of cattle being transported and quantity of rations and food provided.

(b) The consignee shall be informed about the train or vehicle in which the consignment of cattle is being sent and its arrival time in advance.

(c) The consignment of cattle shall be booked by the next train or vehicle and shall not be detained after the consignment is accepted for booking.

Rule 50 - The average space provided per cattle in railway wagon or vehicle shall not be less than two square metres.

Rule 51 - (a) Suitable rope and platforms should be used for loading cattle from vehicles.

(b) In case of railway wagon the dropped door of the wagon may be used as a ramp when loading or unloading is done to the platform.

Rule 52 - Cattle shall be loaded after they are properly fed and given water.

Rule 53 - Cattle in advanced stage of pregnancy shall not be mixed with young cattle in order to avoid stampede during transportation.

Rule 54- (1) Watering arrangements on route shall be made and sufficient quantities of water shall be carried for emergency.

(2) Sufficient feed and fodder with adequate reserve shall be carried to last during the journey.

(3) Adequate ventilation shall be ensured.

Rule 55 - When cattle is to be transported by rail.

(a) An ordinary goods wagon shall carry not more than ten adult cattle or fifteen calves on broad guage, not more than six adult cattle or ten calves on metre guage, or not more than four adult cattle or six calves on narrow guage.

(b) Every wagon carrying cattle shall have at least one attendant;

(c) Cattle shall be loaded parallel to the rails, facing each other;

(d) Rations for padding, such as straw, shall be placed on the floor to avoid injury if a cattle lies down and this shall not be less than 6cms thick;

(e) Rations for the journey shall be carried in the middle of the wagon;

(f) To provide adequate ventilation, upper door of one side of the wagon shall be kept open properly fixed and the upper door of the wagon shall have wire guage closely welded mesh arrangements to prevent burning cindars from the engines entering the wagon and leading to fire outbreak;

(g) Cattle wagons should be attached in the middle of the train;

(h) Cooking shall not be allowed in the wagons nor hurricane lamps without chimneys;

(i) Two breast bars shall be provided on each side of the wagon, one at height of 60 to 80 cm and the other at 100 to 110 cm;

(j) Cattle in milk shall be milked at least twice a day and the calves shall be given sufficient quantity of milk to drink;

(k) As far as possible, cattle may be moved during the nights only;

  (i) During day time, if possible, they should be unloaded, fed, given water and rested and if in milk, milking shall be carried out.

Rule 56 - When cattle are to be transported by goods vehicle the following precautions are to be taken namely;

(a) Specially fitted goods vehicles with a special type of tail board and padding around the sides should be used.

(b) Ordinary goods vehicle shall be provided with anti-slipping material, such as coir matting or wooden board on the floor and the superstructure if low, should be raised.

(c) No goods vehicle shall carry more than six cattle;

(d) Each goods vehicle shall be provided with one attendant.

(e) While transporting the cattle, the goods vehicle shall not be loaded with any other merchandise: and

(f) To prevent cattle being frightened or injured they should preferably face the engine.

ANNEX III (3)

Paragraph 50

Extracts from the Chapter entitled
"REVIEW OF PAST PERFORMANCE AND ASSESSMENT OF FUTURE NEEDS"
of the Report of the Working Group on Animal Husbandry,
set up by the Planning Commission for the Tenth Plan Proposals.

3.11.4 Meat Export

3.11.4.1 The Indian meat export industry has not developed on pragmatic lines due to the controversies against meat sector development in the country. Indian meat exports started with as small a quantity as 2000 tonnes in the year 1973-74 and increased to about 60,000 MT by 1987-88 valued at Rs.88 crores. Meat and preparations have shown an annual compound growth rate (%) of 22.49 during 1991-98, and 11.65 during 1974-98. Export performance of meat during the last decade indicate that buffalo meat export was 93% of total meat export in quantity terms and 88% in value terms. During the decade 1991-2000 buffalo meat exports increased by 163% registering an average annual growth rate of 16%. However, the growth rate was considerably higher during the first 5-year period 1991-95 as compared to the later 5-year period. Sheep and goat meat export increased by 49 % during the decade registering a 5 percent growth rate. In value terms buffalo meat exports increased by 560% during the decade as compared to 191% increase in sheep and goat meat exports. Realization per ton of buffalo meat increased by 66% during first half of the decade while in the second half the increase was by 51%. And for sheep and goat meat increase in per ton realization was by 63% and 20% first and second 5-year periods of the decade. The number of countries to which Indian meat is exported has increased from about 30 in 1994-95 to 50 in 1999-2000. During the year 1998-99 buffalo meat exports have declined by 13% in quantity and 5.2% in value terms compared to the previous year due to economic crisis in South Asian countries. In the following year buffalo meat exports have increased by 11% in quantity and 3.8% in value terms and in the current year (2000-01) the meat exports are estimated at Rs1200 crores, an increase of 50% in value terms.

3.11.4.2 Lamb and sheep meat formed about 4.9 per cent in quantity and about 9.7 per cent in value terms of the total meat exports. Export of goat meat, pig meat, poultry meat, and edible offal's and meat products is in small quantities. Buffalo meat constitutes the major item of Indian meat exports due to domestic availability, price differential between domestic and export markets and export policy (buffalo meat is permitted for export while beef is banned). The potential advantages of Indian meat exports include: large raw material resource, price competitiveness, cheap labor costs, proximity to importing countries, and preference for Indian lean meat produced on natural grazing and liberalized economic policies. Major constraints affecting Indian meat exports include: livestock disease situation (prevalence of foot and mouth disease), in adequate modern abattoir facilities, negative propaganda of some social groups against meat exports and lack of pragmatic slaughter policy for effective utilization of livestock resources.

3.11.4.3 A number of organizations are working for imposing total ban on meat exports. The consequences of ban on meat export would be more on buffalo production as buffalo meat export forms 92 per cent of total meat export. A marginal effect on goat production could be observed. However, sheep production gets adversely affected fetching decreased returns to sheep farmers. The demand for mutton (sheep), particularly in Northern India is limited and a ban on meat export would adversely affect sheep producers of Rajasthan, Uttar Pradesh, Haryana and Gujarat States. Consideration of ban on meat export is neither in the interest of the livestock producers nor in National interest. A study on the economics of meat export would be desirable to critically examine the benefits of meat exports in National interest and answer the frequent criticism-demanding ban on meat exports.

3.11.5 Livestock Market

3.11.5.1 India has over 2000 markets where livestock are traded. Livestock markets are under the jurisdiction of the state governments although the direct operation and supervision would generally fall within the purview of the local bodies. There are a few privately owned markets. State Acts regulate marketing of agricultural produce and the marketing committees are responsible for implementing and enforcing the provisions of the Act.

3.11.5.2 The market for live animals in the country unfortunately has not developed on scientific lines. There are no separate markets for different species of animals. There are no separate enclosures for different species/animals. Brokers facilitate most of the trade. Vertical linkages between the processors/butchers and livestock producers are rare. Wholesale marketing margins amount to about 30% of the consumer price. Market facilities are generally inadequate and if available are poorly maintained. Weighbridges, ramp facilities for loading and unloading, feeding and watering and veterinary facilities are not available. Revenues generated under the act are supposed to be allocated to the markets for operations and improvement but not happening.

3.11.5.3 The development of live animals market information system is vital as data is a key input to informed planning and decision-making. Thus it is virtually a public good and the Government should actively support this activity. Appropriate scheme should be formulated to strengthen the market facilities and introduce a scientifically managed market for conducting marketing operations as well as collecting proper data on livestock marketing. No such effort was made in the previous plans and hence need to be given priority.

3.11.6 Improvement of Slaughterhouses

3.11.6.1 There are 2702 slaughterhouses in the country, which are recognized or authorized by local bodies. In addition a considerable number of animals are slaughtered in unauthorized places. A rough estimate indicates up to 50 percent of animals slaughtered in any urban center are from unauthorized slaughter. Over the years, the facilities and hygienic conditions in most of the slaughterhouses have deteriorated. Compared to 1951, livestock population increased by about 62 percent and human population increased by 134 percent but the number of authorized slaughterhouses have not increased to meet the demand for meat production. The increased demand for meat is met either through over crowding operations in the existing slaughterhouses operating at much higher capacity than feasible in the facilities or through unauthorized slaughter at many places. In both these situations not only meat hygiene is a casualty, increased pollution and adverse public reactions are observed. The existing slaughterhouse capacity in the country is unable to meet the growing public demand for clean and hygienic meat. This can be achieved by improving existing slaughterhouses to accommodate higher capacities and creating new slaughterhouses with modern facilities.

3.11.7 Carcass Utilization centers

3.11.7.1 During 8th Plan a Centrally sponsored scheme " Assistance to states for establishment of carcass utilization centers and hide flaying units" was implemented to effectively utilize dead animals and prevent environmental pollution through proper disposal of the animal waste materials. Continuation of the scheme on dead animal disposal in an appropriate manner is a necessity for recovery of hide and skins and prevent environmental pollution. A critical assessment of the established centres is necessary to evaluate viability and continuation of the scheme. A concerted effort is required for popularizing appropriate disposal of dead animals including their burial in the event of unsound economics of modern rendering for prevention of environmental pollution and livestock disease control.

3.11.8 Rural abattoirs

3.11.8.1 Condition of many of the urban slaughterhouses is far from satisfactory. Improvement of these slaughterhouses is facing more number of problems and efforts to establish new abattoirs or improving and expanding the existing abattoirs have not been successful. With large number of meat consumers living in urban areas, it has become necessary to critically examine the supply of hygienic meat to urban consumers. Production of meat in rural areas and transport of meat to cities has been viewed as an alternative with many added advantages.

3.11.8.2 For comparison of economics of rural and city abattoirs additional cost of meat in terms of chilling of meat and refrigeration transport need to be considered incase of supply of meat to city consumer from rural abattoir as compared to the transportation of animals to city abattoirs and retransportation of hides and skins to tanneries and other waste to out side city limits. A preliminary estimate of the comparative economics has indicated that additional cost of sheep/goat meat due to chilling and transport from rural abattoir comes to Rs. 2.18 per kg as compared to the additional cost of Rs. 4.03 per kg. when the same meat is produced in city abattoir. Similarly in case of buffalo meat additional cost from rural abattoir comes to Rs. 1.56 per kg as compared to Rs. 2.72 when produced from city abattoir. Thus, there is a possibility of reduction in consumer cost of meat and better prices to the meat animal producers. This would also be one of the major steps toward animal welfare, which save millions of animals from stress and pain while transportation from place of production to place of consumption.

ANNEX III (4)

Paragraph 50

Extracts from the Report of Panel XI on Meat Sector of the Working Group on Animal Husbandry & Dairying

b) One million ram lambs/kids to be grown to extra large weights (20% higher than normal weights) at a prize money award of Rs.200/- per lamb/kid. The estimated cost of **Rs.20 crores** to be shared by GOI, State Govt., Meat Exporter and Leather exporter in the ratio of 50:10:20:20 respectively.

5. Strengthening of livestock markets:

Among the 2000 existing livestock markets in the country about 200 markets may be taken up for improvement in terms of better facilities for marketing of animals and collection of information on trade activities. A grant of Rs.5 lakhs to each of the livestock market may be provided to the State govt./UT administration towards capital cost of market improvement. An outlay of **Rs. 10 crores** would be required during X Plan period.

Implementation: Meat production enhancement programmes could be implemented through Meat Authority creation or through State Animal Husbandry Departments or through Private sector.

B. Improvement/Modernization of Slaughterhouses

1. Completion of ongoing projects;

50 ongoing slaughterhouse projects to be completed at an estimated cost of **Rs.100 crores** to be shared by GOI, Local bodies/private entrepreneurs in the ratio of 50:50 basis.

2. Establishment of modern abattoirs of appropriate capacity for large animals and sheep/goat for large cities and Class 1 cities (with population of 1 lakh and above)

a) Cost of abattoirs for 10 large cities (out of 17 large cities) (20 lakh population except Bombay, Madras and Hyderabad) @ Rs.20 crores for each abattoir. Estimated cost of **Rs.200 crores** to be shared by GOI and Private in the ratio of 50:50 and to be established by Private entrepreneurs on BOT basis. Ownership of projects lies with State Govt. and to be leased to Private on lease basis with appropriate agreement. Local bodies to arrange for site on priority. Establishment of rural abattoirs could be explored for supply of meat to these cities.

2. Establishment of Rural Carcass Utilisation centres: For effective collection and disposal of dead animals 500 units each at a cost of Rs.20 lakhs to be established and the cost should be shared by GOI and State in the ratio of 90:10. Estimated cost **Rs.100 crores.**

Implementation: Schemes could be implemented through creation of Meat Authority. State Governments or Private Sector.

D. Strengthening of Animal byproducts processing units:

50 units of bone and bone products processing units and animals casing processing units need to be provided with processing and quality control facilities to the extent of Rs. 20 lakhs to each unit and the cost to be shared by GOI and Processor on 50:50 basis. Estimated cost **Rs.10 crores.** Schemes could be implemented through Meat Authority creation. CAPEXIL or APEDA.

E. Promotion of Meat Exports

1. Establishment of 10 integrated export abattoir complexes in Private sector at a total cost of **Rs.400/- crores** to be invested by meat exporters. Government commitment could be providing land, financial concessions in the form of customs duty exemption on import of machinery, sales tax and octroi exemption.

2. Market intelligence and analysis. A monitoring study on market intelligence and analysis of factors that influence meat exports so that appropriate steps could be taken for promotion of meat exports. Estimated cost of **Rs. 1/- crore** to be shared by GOI and Exporters on 50:50 basis.

3. Disease monitoring and control in each district where modern abattoir is located. 10 districts each district at a cost of Rs.30/- lakhs and the cost to be shared by GOI, State and Exporter in the ratio of 50:25:25. Estimated cost **Rs. 3/- crores.** Elaborate programmes under Livestock health sub-sector should be formulated for FMD eradication and control other livestock diseases for promotion of meat exports.

4. Quality control programmes for Monitoring of residues and chemical contaminants in animal products. Strengthening of identified laboratories for monitoring of residues and chemical contaminants. Estimated cost of **Rs. 5/- crores** to be shared by GOI and exporters in the ratio of 80:20.

Implementation: Through Meat Authority creation, DAHD(GOI), State Govt., APEDA, ICAR and Private Sector.

F. Human Resource development and technical studies

1. Strengthening meat department at least in 4 Veterinary colleges with teaching and training infrastructure facilities at a cost of Rs. 25 lakhs for each centre and

Rs. 25 lakhs for each centre for organising training programmes including expenditure on candidates. Estimated cost **Rs. 2 crores** and GOI to provide on **100% basis.**

2. Developing norms and monitoring criteria for implementation of the schemes. Estimated cost of **Rs. 50 lakhs** to be provided by GOI on 100% basis.

3. A study on improvement of cow economy and protection of cow. Dynamics of cow and progeny utilisation including pragmatic approach on bullock utility to improve cow economy and its protection. Smuggling of cattle to Bangladesh and cruelties in transport of cattle to be studied for positive approach on cattle utility. Means of improving cow economy under different agroclimatic zones including survey, research and extension approaches need to be attempted. Appropriate incentives/prize money/felicitation to farmers associated with cow economy need to be provided. Estimated cost of **Rs.10 crores** to be provided by GOI on 100% basis.

4 A study on Animal Transportation Rules for appropriateness and practicalities including prevention of cruelties. The rules should be based on practical transportation tests and objective criteria. Estimated cost of **Rs. 30 lakhs** to be provided by GOI on 100% basis.

Implementation: DAHD(GOI), ICAR, Private Sector

G. Policy measures

1. Establishment of **National Meat Board** to implement, monitor and guide developmental programmes in Meat Sector. An estimated cost of **Rs. 2 crores** to be shared by GOI, Meat Exporters and Leather Exporters in the ratio of 50:25:25.

2. Development of National Livestock Policy and suggestions to States for developing State policy on Animal Production and Utilisation within the National Livestock policy.

3. Review of State Animal Preservation Acts and suggest Amendments in view of the changing Animal Production and Utilization Scenario. Restrictions on slaughter of buffaloes should be removed.

4. Pragmatic age limit for slaughter of bullocks and removal of ban on beef export to improve cow economy and prospects of cattle.

5. Animal Husbandry Departments under State Govt. should be entrusted with licensing of slaughterhouses as at present local bodies who are the owners are also license providers.

6. Livestock Importation Act to be amended to cover import of meat and byproducts to prevent animal and human health risks.

Summary of Programmes in Meat Sector						
Programme	**Cost Rs. in Crores**	**GOI**	**State/ Local Body**	**Meat Exporter**	**Leather Exporter**	**Private Entre-preneur**
A. Meat Prodn. Enhancement	**235**	**121.5**	**24.25**	**44**	**25**	**20.25**
1.Growing buffalo calves	100	50	10	20	10	10
2.Salvaging buffalo calves	90	45	9	18	9	9
3.Salvaging elite buff.Germplasm	5	2.5	1.25	-	-	1.25
4.Growing lamb/kids						
a.Growing to Normal weights	10	5	1	2	2	-
b.Growing to larger weights	20	10	2	4	4	-
5. Livestock markets strengthening	10	9	1	-	-	-
B. Development of slaughterhouses	**985**	**500**	**112.5**	-	-	**372.5**
1.50 ongoing projects	100	50	25	-	-	25
2.17 large city abattoirs	200	100	-	-	-	100
3.280 Class I town abattoirs	250	125	-	-	-	125
4.2000 Class II to V towns	250	125	62.5	-	-	62.5
5.1000 village slaughter units	50	25	25	-	-	-
6.50 pig slaughter units	15	15	-	-	-	-
7.1000 chicken dressing centres	120	60	-	-	-	60
C. Carcass Utilisation Centres	**150**	**135**	**13**	-	-	**2**
1.15 Ongoing projects	30	27	3	-	-	-
2.10 modern rendering plants	20	18	-	-	-	2
3.500 rural carcass utilisation units	100	90	10	-	-	-
D. Animal byproduct centres	**10**	**5**	-	-	-	**5**
50 bone and animal casing units						
E. Meat Export promotion	**409.2**	**6.2**	**0.75**	**402.25**	-	-
1.Modern abattoir complexes	400	-	-	400	-	-
2.Market intelligence study	1	0.5	-	0.5	-	-
3.Study on economics of meat export	0.2	0.2	-	-	-	-
4.District disease control	3	1.5	0.75	0.75	-	-
5.Quality control	5	4	-	1	-	-
F. Human Resource Development & Technical Studies	**12.8**	**12.8**	-	-	-	-
1.Strengthening 4 meat depts.	2	2	-	-	-	-
2.Developing norms for schemes	0.5	0.5	-	-	-	-
3.Study on cow economy & protection	10	10	-	-	-	-
4.Study on animal transportation	0.3	0.3	-	-	-	-
G. Policy measures	**2**	**1**	-	**0.5**	**0.5**	-
1.National Meat Dev. Board	2	-	-	0.5	0.5	-
2.National Livestock Policy	-	-	-	-	-	-
3.Review of Animal Preservation Acts	-	-	-	-	-	-
Total	**1804**	**781.5**	**151.5**	**446.75**	**25.5**	**399.75**

Private entrepreneur could be farmer meat exporter, leather exporter, meat trader etc.

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ANNEXES

CHAPTER IV

LEGISLATION

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ANNEX IV (1)

Paragraph 17

What is your option about making of laws on prohibition of slaughter of cows and its progeny as Cen Laws by Parliament. Whether they would be covered by any item in Central List or Concurrent List. If whether you would opt for amendment of the Constitution taking this subject in Central or Concurrent List.

1. Superintendent of Police, Hanourpur	It should be covered in concurrent list.
2. Additional Superintendent of Police, Jhansi	Yes
3. Superintendent of Police, Kerala	Laws on probhibiting sloughter of cows and its progeny may be enacted
4. Superintendent of Police, Madurai	Yes, a law should be made to prohibit the slaughter of cow and its progeny as central laws
5. Justice Smt.Pratibha D.Upasani	For this purpose, the Constitution needs to be amendment to bring the relevant entry into Concurrent list , so that the parliament gets powe legislate on this subject . Once this power is veste the parliament , laws can be enacted with a sin majority, though this appears to be a rather diffi task, considering the present poltical scenario in Country.
6. Dupty Director Animal Husbandairy, Jalandhar	It should be
7. District Collector, Srikakulam	It can be included
8. Deputy Commissioner, Moga	Concurrent list
9. District Collector, Patiala	It would be better if constitution is amended
10. District Collector, Kailashahar	Yes making of law on prohibition of sloughter of cow by parliament is vEry necessary for protection from pollution
11. Additional District Collector, Bolangir	There should be a law with well defined clauses

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Whether cow slaughter prohibition should be included in the Fundamental Rights in The Constitution.

1.	Additional Superintendent of Police, Jhansi	Yes
2.	Superintendent of Police, Madurai	Yes, cow slaughter prohibition should be included in the Fundamental Rights in the Constitution.
3.	Dupty Director Animal Husbandairy, Jalandhar	It should be included in the Fundamental Rights
4.	District Collector, Srikakulam	Yes
5.	District Collector, Patiala	Yes
6.	District Collector, Yavatmal	That should be included
7.	District Collector, Kailashahar	Yes
8.	Additional District Collector, Bolangir	Yes

Whether you want a review of the 1958 Mohd.Hanif Qureshi vs.State of Bihar (AIR 1958 SC 731) Judgement of the Supreme Court holding that a butcher has got a Fundamental Right of his trade or business of slaughter of uneconomic or disabled bull or bullocks.

1. Superintendent of Police, Kerala	Yes
2. Superintendent of Police,Kurukshetra	Yes
3. Superintendent of Police,Ladhakh	Yes
4. Additional Superintendent of Police, Jhansi	Yes
5. Superintendent of Police, Madurai	Yes, a law should be made to prohibit the slaughter of cow and its progeny as central laws
6. Justice Smt.Pratibha D.Upasani	Yes. In my opinion, it would be desirable to have the review of the judgement of supreme Court reported in AIR 1958 SC 731 Mohd.Hanif Qureshi vs. State of Bihar As far as the utilitarian aspect of Mohd.Hanif' case (Supra) is concerned, it has to be said that bulls and bullocks are not useless to the Society because till the end of their lives they do yield their excreta in form of urine and dung which are both extremly usefull for bio-gas and manure. After their death also, they supply hide and other accessories. Therefore, to call them useless is totally devoid of reality. If the expenses incurred for their maintence are not fully covered by the return which they give, at the most, it can be said that they become less usefull. Mohd.hanif's judgement (Supra) is required to be reviewed, which is half a century old. Since then, many important and revealing researches are made in the field of bio-gas energy and importance of organic manure.
7. Dupty Director Animal Husbandairy, Jalandhar	It should be
8. District Collector, Srikakulam	It can be included
9. District Collector, Theni	Yes
10. Deputy Commissioner, Moga	Concurrent list

11. District Collector, Sivaganga	Yes
12. District Collector, Patiala	It would be better if constitution is amended
13. District Collector, Kailashahar	Yes, review of Judgement of Supreme Court regarding amendment of Fundamental Right of a butcher for slaughter of cattle for bussiness purpose is necessary for protection of cows. However if cow slaughter prohibition is included in the Fundamental Rights this may not be required.
14. District Collector, Karur	Yes, it has to be reviewed.

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Who were the Muslim or Mughal Emperors who prohibited the cow slaughter during their reign and in which regions.

1. Superintendent of Police, Hanourpur	Akbar the great
2. Superintendent of Police, Jhansi	Emperor Akbar
3. Justice Smt.Pratibha D.Upasani	Cow slaughter was prohibited during the period of Emperor Akbar particularly in and around the temples
4. Dupty Director Animal Husbandairy, Jalandhar	Akbar issued orders thereby prohibiting the cow slaughter .
5. District Collector, Kailashahar	The Muslim Emperior Mohamad Jalauddin Akbar prohibiting the cow slaughtr in his time. cow by parliament is vEry necessary for protection from pollution
6. District Collector, Buldana	Samrat Akbar and Aurangazeb were the Emperior who prohibited cow slaughter during the reign.
7. District Collector, Karur	
8. District Collector, Palakkud	Babar,Humayoon, Ahmed Shah, Hyderali Akbar.

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Who were the great men in India who started the cows slaughter prohibition movement in India.

1. Superintendent of Police,Kurukshetra	Sant Vinoba Bhave
2. District Collector, Haryana	Mahatma Gandhi,Acharya Vinoba Bhave
3. Superintendent of Police,Ladhakh	Swami Vivekananda
4. Superintendent of Police, Jhansi	Shankaracharya
5. Additional Superintendent of Police, Jhansi	Acharya Vinoba Bhave, Bal Gangadhar Tilak,Raja Ram Mohanrai
6. Justice Smt.Pratibha D.Upasani	Acharya Vinoba Bhave, All Shankaracha Yes
7. Dupty Director Animal Husbandairy, Jalandhar	Mahatma Gandhi, Rajendra Prasad,Bal Gangadhar Tilak, Lala Lajpat Rai,Vinoba Bhave, Jai Prakash Narain,P.Madan Moh Malavya
8. District Collector, Srikakulam	Acharya Vinoba Bhave
9. District Collector, Tiruvarur	Acharya Vinoba Bhave
10. Deputy Commissioner, Moga	Acharya Vinoba Bhave
11. Deputy Commissioner (Health) Corporation of Chennai	Acharya Vinoba Bhave, Sankaracharya
12. District Collector, Sivaganga	Acharya Vinoba Bhave
13. District Collector, Thanjavur	Acharya Vinoba Bhave
14. District Collector, Purulia	Acharya Vinoba Bhave
15. District Collector, Kailashahar	Indira Gandhi
16. Additional District Collector, Bolangir	Sankaracharya
17. District Collector, Palakkud	Mahatma Gandhi,Acharya Vinoba Bhave

Is it a fact that by using cow dung and organic manure and medicines or pesticides ailing bullocks bulls become economically viable.

1. Superintendent of Police, Hanourpur	Yes
2. Superintendent of Police, Kerala	Yes
3. Superintendent of Police,Kurukshetra	Yes
4. District Collector, Haryana	Yes
5. Superintendent of Police,Ladhakh	Yes
6. Additional Superintendent of Police, Jhansi	Yes
7. Superintendent of Police, Kerala	Yes, Cow dung is a commercially viable
8. Superintendent of Police, Madurai	Yes
9. Justice Smt.Pratibha D.Upasani	Yes
10. Dupty Director Animal Husbandairy, Jalandhar	Yes
11. Deputy Commissioner, Moga	Yes
12. District Collector, Yavatmal	Yes
13. Additional District Collector, Bolangir	Yes

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hould cow slaughter be totally banned or regulated allowing killing of selected animals? Which type of cattle hould be permitted to be eliminated?

1.	Superintendent of Police, Hanourpur	By allowing killing of selected animals like infirm and sick once only
2.	Superintendent of Police,Ladhakh	To be regulated
3.	Additional Superintendent of Police, Jhansi	Yes
4.	Superintendent of Police, Kerala	Laws on probhibiting sloughter of cows and its progeny may be enacted
5.	Superintendent of Police, Madurai	Yes, a law should be made to prohibit the slaughter of cow and its progeny as central laws
6.	District Collector, Tiruvarur	Allowing killing of selected animal unproductive male animals.
7.	Deputy Commissioner (Health) Corporation of Chennai	The existing prohibition on cow slaughter may be continue
8.	District Collector, Yavatmal	Totaly banned of cow slaughter should not be followed in India uneconomical animals and disable animals should be allowed for slaughter

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Should not punishment for violation of Laws under Act be more heavy than what the existing statutes provide

1. Superintendent of Police, Hanourpur	Yes
2. Superintendent of Police, Kerala	Yes
3. Superintendent of Police,Kurukshetra	Heavy punishment is needed.
4. District Collector, Haryana	Should be made heavy punishment.
5. Superintendent of Police,Ladhakh	Yes
6. Superintendent of Police, Jhansi	Yes
7. Superintendent of Police, Kerala	Yes
8. Justice Smt.Pratibha D.Upasani	Yes, The punishment for violation of the laws under Act should be more stringent. Because as such punishment which is provided, is inadequate and ser no purpose
9. Dupty Director Animal Husbandairy, Jalandhar	Punishment should be heavy for proper implementat of Laws.
10. District Collector, Srikakulam	Yes
11. District Collector, Theni	Should be more heavy.
12. District Collector, Patiala	Yes
13. District Collector, Purulia	To be made more heavy.
14. District Collector, Kailashahar	It should be more stronger
15. Additional District Collector, Bolangir	There should be a law with well defined clauses
16. Deputy Commissioner, Nawanshahr	Yes, It should be.

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Should not unauthorized slaughter be made a cognizable offence?

1. Superintendent of Police, Hanourpur	Yes
2. Superintendent of Police,Kurukshetra	Yes, It should be made a cognizable offence
3. District Collector, Haryana	Yes
4. Superintendent of Police,Ladhakh	Yes
5. Superintendent of Police, Jhansi	Yes
6. Additional Superintendent of Police, Jhansi	It should be
7. Superintendent of Police, Kerala	Yes
8. Superintendent of Police, Madurai	Yes, unauthorized slaughter of cow be made cognizable offence.
9. Justice Smt.Pratibha D.Upasani slaughter	Yes. The offence of carrying unauthori must be made a cognizable offence. This will h in bringing to book all those butchers who carrying out their activities on the road s dhabas or any other open spaces in the m unhygienic and cruel manner.
10. Deputy Director Animal Husbandairy, Jalandhar	Yes
11. District Collector, Tiruvarur	Unauthorized slaughter to be made offence
12. District Collector,Nuapada	
13. District Collector, Theni	Yes
14. Deputy Commissioner, Moga	Yes
15. Deputy Commissioner (Health) Corporation of Chennai	Yes
16. District Collector, Sivaganga	Yes
17. District Collector, Patiala	Yes
18. District Collector, Thanjavur	Yes. Unauthorized slaughter to be made offences
19. District Collector, Purulia offence	Unauthorized slaughter may lead to serioue
20. District Collector, Yavatmal	Yes. Unauthorized slaughter should be taken a cognizable offence and major punishment shou be given.
21. Additional District Collector, Bolangir	Should be cognizable offence.

सत्यमेव जयते

Should the burden of proof in a case arising out of slaughter be on the accused?

1. Superintendent of Police, Hanourpur	Yes
2. Superintendent of Police, Kerala	Yes
3. Superintendent of Police,Himachal	
4. Superintendent of Police,Kurukshetra	Yes
5. District Collector, Haryana	Yes
6. Superintendent of Police,Raipur	
7. Superintendent of Police,Ladhakh	Yes
8. Superintendent of Police, Sirumur	
9. Superintendent of Police, Jhansi	Yes
10. Additional Superintendent of Police, Jhansi	Yes
11. Superintendent of Police, Kerala	Yes
12. Superintendent of Police, Madurai	Yes, a law should be made to prohibit the slaughter of cow and its progeny as central l
13. Justice Smt.Pratibha D.Upasani	It is very difficult to prove that the animals are being taken for slaughter and the accused are t let off. If the burden of proof is shifted t accused, it will be boon to the animals an accused also can be punished.
14. Dupty Director Animal Husbandairy, Jalandhar	Yes
15. District Collector, Srikakulam	Yes
16. District Collector,Nuapada	Yes
17. District Collector, Theni	Yes
18. Deputy Commissioner, Moga	Yes.
19. District Collector, Sivaganga	Yes
20. District Collector, Patiala	Yes
21. District Collector, Thanjavur	Yes
22. District Collector, Purulia	Yes
23. Additional District Collector, Bolangir	Yes
24. District Collector, Buldana	Yes
25. District Collector, Karur	Yes

ANNEX IV (2)
Paragraph 17

NATIONAL COMMISSION ON CATTLE

(Ministry of Agriculture, Department of Animal Husbandry & Diarying. Government of India)
Jawahar Lal Nehru Stadium, Gate No. 32 First Floor, New Delhi-110003 Tel.: 4368061, 4368062, 4368063

Justice Ranganath Misra M.P. (R S.)
Convenor : Committee on Cattle Laws & Legislation

QUESTIONNAIRE

(Note : Please attach a seperate sheet wherever required marking question number there on)

1. What is your opinion about making of laws on Prohibition of slaughter of Cow and its progeny as Central Law by Parliament., Whether they would be covered by any item in Central List or Concurrent list. If not, whether you would opt for amendment of the Constitution taking this subject in Central or Concurrent List.

Whether Cow Slaughter Prohibition should be included in the Fundamental Rights in the Constitution.

3. Whether you want a review of the 1958 Mohd. Hanif Qureshi vs. State of Bihar (AIR 1958 SC 731) judgement of the Supreme Court holding that a butcher has got a Fundamental Right of his trade or business of slaughter of uneconomic or disabled bull or bullocks.

4. Please give reasons why the Report of the Sardar Datar Singh Committee 1947-48 to prohibit slaughter of cow and its progeny completely within two years was not included in the Constitution.

5. Whether the Central Govt. or the Prime Minister gave an assurance to Acharya Vinoba

Bhave that cow slaughter prohibition would be completely legislated and implemented throughout India.

6. What steps you have taken in pursuance of the assurance, if any, given by Mrs. Indira Gandhi.

7. How many private Members introduced Bills or Resolutions in the Lok Sabha or Rajya Sabha for the prohibition of the slaughter of the Cow and its progeny since 1950 and what were the fate of them.

8. Whether the Govt. of India gave an assurance to the 1967 Committee of Govt. having Puri Sankararacharariji, Guruji and many others like D.P. Mishra, Shri Charan Singh, etc. that they have to suggest methods for implementing the principles of complete prohibition of the slaughter of the cow and its progeny in India.

9. What is the number of slaughter houses—illegal and legal, mechanical or indigenous in India.

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10. Whether the Municipal Laws or State Laws prohibit or regulate construction of slaughter houses and if so, give the details of each State.

11. What are the existing cow slaughter prohibition laws in India. Central as well as State.

12. Which of the States permit cow slaughter completely and which partially. Give details.

13. What is the impact of the Ashutosh Lahri and others vs. State of West Bengal (AIR 1995 Sc. 464) Supreme Court Judgement declaring Govt. of Bengal's Notification permitting Cow Slaughter during Bakri-Id unconstitutional.

14. Whether the Supreme Court in 1994 has laid down that under the Muslim law and their religion, there is no compulsion for doing sacrifices of cow on Bakri-Id. Give details.

15. Please mention the political parties who are in support of prohibition of cow slaughter and its progeny. Please mention who are against it.

16. Did Shri Vasanth Sathe on behalf of All India Congress Party give a speech in Lok Sabha in 1990 supporting cow slaughter prohibition completely and said that it was the official policy of the Congress.

17. Is it a fact that the cow slaugthter complete Prohibition Bill of private member Justice Guman Mal Lodha in 1990 was supported by the majority of members as per electronic display but immediately after voting, it was defeated by permitting correction of voting originally given by changing in slip voting by hand.

18. Which are the countries you have heard in which there is prohibition of slaughter of cows.

19. Who were the Muslim or Mughal Emperors who prohibited the cow slaughter during their reign and in which regions.

20. Who were the great men in India who started the cow slaughter prohibition movement in India.

21. Whether the export or import of beef is prohibited in India?

22. Is it a fact that by using cow dung and urine for organic manure and medicines or pesticides ailing bullocks or bulls become economically viable.

23. How many people have sacrificed their lives for cow slaughter prohibition? Mention their names and details.

24. Should cow slaughter be totally banned or regulated allowing killing of selected animals? Which type of cattle should be permitted to be eliminated?

25. Examine the correctness of the opinion that hide from slaughtered cattle is superior in quality to hide collected from otherwise dead cattle.

26. Should not punishment for violation of laws under Act be more heavy than what the existing statutes provide?

27. Should not unauthorized slaughter be made a cognizable offence?

28 Should slaughter be subject to appropriate certificate from the competent authority?

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29 Should slaughter in unauthorized place carry a major punishment?

30. Should the burden of proof in a case arising out of slaughter be on the accused?

31. What steps should be appropriate to safeguard against mixing of beef meat with other meat?

ANNEX IV (3)
Paragraph 17

MEMORANDUM

Placed before the National Commission on Cattle
on 19/3/2002 at Calcutta in Public Hearing by
Dr. D. R. Marwaha Ex. Adviser to the Govt. of W.B.
Presently Vice President of the A.L.O.A. Society
on behalf of the Society & on his personal behalf

सत्यमेव जयते

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MEMORANDUM

Placed before the National Commission on Cattle
on 19/3/2002 at Calcutta in Public Hearing by
Dr. D. R. Marwaha Ex. Adviser to the Govt. of W.B.
Presently Vice President of the A.L.O.A. Society
on behalf of the Society & on his personal behalf

The National Commission on Cattle has a very vast terms of reference related to all aspects of Cattle, which for the sake of today's (19/3/2002) Public Hearing . fall under three broad groups.

1. Cattle Development as a National Cattle Wealth :
2. Bye-products of cattle "Industry"on commercial aspect.
3. Cattle preservation, protection & conservation to save this wealth :

- *__Cattle Development__* : is mainly domain of Govt. machinery (which in case of West Bengal is the Animal Resources Development Deptt.) and is therefore left (by me) to the learned experts and scientists as well as efficient administrative wing of the ARD Deptt.

- *__By-products of cattle "Industry"__ (other than milk):* which make significant contribution to the national economy, is also left to the industrial houses, Gaushalas and concerned economic Ministries . I would not like to encroach on this subject, too

- *__Cattle preservation,Protection and Conservation__* : of cattle wealth as a whole and individual animals of this species for which appropriate legislations have been enacted & towards which a very large number of N.G.Os (like the ALOA) are making valuable contribution are most important for persons like me . Therefore I would like to restrict my presentation to this aspect only by highlighting **some salient points connected with and related to conservation, preservation , protection and welfare of animals of Cattle species.**

- **Reference:** ***Legislation and implementation issues, mentioned in the questionnaire issued by the Commission to all concerned.***
The said questionnaire has been however replied by
the ALOA Society separately.

PRESENTATION

Legislation in West Bengal related to Cattle

Through there are many legislations related to cattle (other animals) in the state of West Bengal , only three legislations mentioned below are directly & closely concerned with **protection, conservation and Preservation** as well as for **ensuring welfare of cattle** (of-course for all other species of animals as well) .

A) *West Bengal Animal Slaughter Control Act of 1950* as amended in 1979 with rules framed there under (This is a State Act).

B) *Prevention of Cruelty to Animals Act 1960* as passed by the parliament with various rules framed there under - A Central legislation

C) *Meat Control Order:* Under which the state Govt. can declare a particular day as "Meat -less day" (obviously the meat animals cannot be slaughtered on this day.)

I, on behalf of the ALOA society would touch only important Technical & professional points for information & benefit of the commission members on these 3 legislations in seriatum

THE ANIMAL SLAUGHTER CONTROL ACT 1950 (22 OF 1950)
Amended by West Bengal Act 19 of 1979

The act is supposed to be applied & enforced in whole State of West Bengal. The act was an obvious effort to put partial & conditional control (or prohibition) on slaughter of animals enlisted in the schedule of the Act which are:

Bulls, Bullocks, Cows, Calves, males and female Buffaloes, Calves & Castrated Buffaloes .

Necessity of reviewing this Act :

The act , which was amended in 1979 (23 years back) ,was certainly enacted with good intention to control & prohibit slaughter of productive & useful cattle. Due to certain lacunae (more of technical & professional nature) however the act by & large has failed to protect & preserve the real cattle wealth of the country . Rather it is exploited by vested interest as a part of a very long chain of offenders to deplete national cattle wealth fast .The impact of this exploitation & continuing (rather progressively increasing) loss to cattle wealth is felt all over the country, particularly in those states, which breed & preserve Indian breeds of cattle & buffaloes.

We, the ALOA Society and other N.G.Os engaged in Animal Welfare activities strongly advocate thorough re-examination of the Act for introducing drastic amendments to match 'Good intentions'. (which form the core of this legislation)with and assist the implementation machinery to act more rigidly for meeting present day needs of the country

Conted.....3

Sections of the Act which need Re – Examination to be reviewed

Sections 4 , 5 , 7 & 12 of the Act (which form the core of the Act) require drastic amendments. There are many loopholes, which must be plugged to match the intention of the Act with the actual enforcement .For the information of the members we have therefore tried to express our views on each of these 4 sections under 3 group headings i . e. ,

i) **Provision /s under the Section.**

ii) **Ground realities in the process of implementation , and**

iii) **Critical comments based on Technical & professional analysis, wherever needed.**

Let us discuss these four sections accordingly , in seriatum

SECTION 4

Prohibition of slaughter of Animals without certificate.

Provision made under Section 4 & Sub Sections.

Section 4 Spells out : 'No person shall slaughter any animals (belonging to cattle or buffaloe species) unless he (or she) has obtained in respect thereof a **Certificate Under Section** (2) that '**the animal is fit for slaughter**'. This section provides that the president of a Municipality (**Mayor of a Municipal Corporation) or a Panchayat Samiti**, as the case may be, and the Veterinary Surgeon (only authorized Govt. Veterinary Surgeon),may issue a certificate under their joint signatures that an animal ' **is fit for slaughter** ' if they are both of the opinion (which has to be recorded in writing in the body of the certificate) that

a) The animal is over 14 years of age and is unfit for work or breed ,
b) The animal *(though less than 14 years old)* has become permanently incapacitated for work or breeding due to age , injury, deformity or any incurable disease.

Sub – Section (3) of Section 4

Provides that "where there is difference of opinion between the president of a Municipality or Pancyahat as the case may be, and the Veterinary Surgeon, as to the issue of certificate under section (2) , the matter shall be referred to the (Govt) Veterinary officer (superior to the Govt. Veterinary Surgeon) and the Certificate may be issued or refused accordingly as"

Veterinary officer is of the opinion that the animal is 'fit' to be slaughtered or is 'not fit' to be slaughtered,

(see critical comments at page10)

Conted.....4

Sub Section (6) of Section (4)

Provides that the state Govt. may, at any time for the purpose of satisfying itself, as to the legality or propriety of any action taken under this section call for and examine the record of any case, and may pass orders there on as it thinks fit

(see critical comment at page 10)

Sub Section (7) of Section 4

Provides that "subject to the provisions of this section , any action taken under this section shall be final and shall not be called in question in any court.

SECTION 5

Prohibition of animals in places not prescribed for the purpose.

Section 5 provides that No animal in respect of which a certificate has been issued under section 4 shall be slaughtered in any place other than a place prescribed in this behalf.

Place prescribed by any competent authority (Chairman /Mayor local bodies or Panchayat Samiti) under the Act is ***cattle slaughter house / place*** , where there is arrangement for slaughtering cattle & buffaloes.

The section in a way ensures that cattle , which are found as 'fit for slaughter' as per certificate can not be slaughtered on any other place. It is implied that no such certificate can be issued unless a ***cattle slaughter house*** exists within a local body. ***Obviously there was a very clear intention on the part of Lawmakers to prohibit cattle slaughter in any town where a cattle slaughter house is not existing.***

Cattle slaughter houses in the state of West Bengal are only located in 4 districts including Calcutta . List of these slaughter houses is mentioned under "Ground Reality No 1 page no 4."

Ground Realities related to Sections 4 & 5 of the Act .

First of all let us appreciate what are the ground realities in regard to cattle slaughter in West Bengal, existence of cattle slaughter houses in the State & enforcement of this Act in the State for stopping illegal cattle slaughter,in those districts of the state in which no Cattle Slaughter House exists and obviously the act is not enforced.

Ground Reality No. 1

The West Bengal Animal slaughter Act 1950 (amended in 1979) is automatically extended in whole of West Bengal but is actually enforced in jurisdiction of only in local bodies mentioned below

Conted.....5

1) **Darjeeling Municipality in Darjeeling District.**

2) **Kalimpong Municipality in Darjeeling District.**

3) **Kurseong Municipality in Darjeeling District.**

4) **Goom Town in Darjeeling District.**

5) **Asansol Corporation in Burdwan District.**

6) **Ranigunj Municipality in Burdwan District.**

7) **Tangra Slaughter house under Calcutta Corporation.**

8) **Garden Reach Municipality in District 24 Parganas (S) .**

9) **Purulia Municipality in Purulia District.**

10) **Jiagunj Block in Murshidabad District.**

11) **Budge Budge Municipality in 24 Parganas (S).**

Obviously the Act is not enforced anywhere else in the State .Out of 20 districts of the State including Calcutta the Act is enforced (or is operative) in only four districts and only in eleven towns.

Critical Comment

How the demand for beef is met in places other than 11 towns ? The answer is anybody's guess.

Ground Reality No. 2

सत्यमेव जयते

How the West Bengal Animal slaughter Act helps the neighbouring state of Behar by bypassing Bihar preservation and improvement of Animals Act 1955., is an interesting Ground Reality .

Cattle slaughter is prohibited in Bihar under Bihar preservation and improvement of Animals Act 1995.An interesting ground level situation exists covering Kishangunj, a town of Bihar, surrounded on all 3 sides by small towns and rural area of **West Dinajpur District** of West Bengal.

It is in everybody's knowledge that cows (& even young heifers of cattle species) and she buffaloes, slaughter of which is totally prohibited in Bihar, are made to cross into W/B through inter state border and are freely slaughtered in West Bengal rural belt (**Where large number of improvised cattle slughtering places, more or less, permanently functing five days a week**) for illegal slaughter & the beef is freely transported back to Kishangunj Town of Bihar.
There is a very strong force (& power) behind this scandalous conspiracy. In the eyes of law no offence has been committed by anybody in this scandal.

Conted.....6

'Explanation : W/B Animal slaughter Act does not prohibit slaughtering females of cattle & buffalo species in West Bengal **where these animals are driven on hoof to be actually slaughtered**. No action is therefore called for against 'offenders' and even if any body is booked for the offence under the , Act the charges are bound to fail in the Court of Law.

On the other hand there is no ban on transportation, marketing & sale of beef (cattle & buffaloe meat) in Behar though slaughter of females of cattle species & she buffaloe is completely prohibited.

Obviously offence is not committed by any person in the eyes of law in both the states.**But ground reality is that cattle are driven on hoof from Bihar to West Bengal in day light, which is perfectly legal and the Beef (meat) is transported by a vehicle from West Bengal to Bihar, also in day light which is equally lawful.**

So where is the offence ? and who are the offenders? and under which legislation they can be booked ?

*However the commission **cannot** ignore the ground reality* – i.e For Five days a week, all the year round, hundreds & thousands of cows (& even heifers virgin females) And She Buffaloes, originated in Bihar which form National Wealth are lost day in & day out on the soil of West Bengal

National commission on cattle may perhaps bring both states on a 'dialogue table' and try to find out some workable solution to help in preserving and conserving National Cattle Wealth. It should also need be.Investigated if there are more Kishanjugj type stitutions along fairly long inter-state border between West Bengal & Bihar.

Ground Reality No. 3

Situation in Tangra & Garden Reach – Two cattle slaughter houses, functioning in Calcutta.

It is better to understand the situation as it exists in these two biggest slaughter houses of the state, which are

i) Tangra Cattle slaughter house, owned & managed by C.M.C. Calcutta

and

ii) Garden Reach cattle slaughter houses owned & managed by Garden Reach Municipality.

Both these slaughter houses cater to the needs of Calcutta, Suburbs & Garden Reach Municipal area . In both these slaughter houses about 400 cattle (including buffaloes) are slaughtered daily 5 days a week, which means approximately a little over 1.00 lakh animals per annum. Number of cattle slaughtered shared between these two slaughter houses is 250 in Tangra & 150 in Garden Reach (approximate figures).

Conted.....7

TYPE OF CATTLE SLAUGHTERED IN THESE SALUGHTER HOUSES

Out of these 400 cattle, how many are cattle & how many are buffaloes are on Govt. record. However our guess is 60:40 ratio (or 50 : 50) between these two species. Majority of these animals, by & large do not fall in the category of W/B's indigenous stock. **Maximum number is of cattle originated in Haryana, U.P. Bihar, Rajasthan Punjab & Delhi, majority of which are procured from local khattals around Calcutta.** These animals were brought for milk from other states and after they dry they reach in the hands of butchers, who are available as 'ready buyers' . A good percentage of these animals are also moved to Calcutta on hoof from Bihar specially for slaughter in Calcutta .

Procedure of inspection of animals for issuing certificate of ' Fit for slaughter' or Not fit for slaughter under subsection (2) of section 4 is as under .

In Tangra there is a very large lairage (resting enclosure for animals produced for inspection), which is provided with water & feeding troughs in the shed built for protection from rain & sun. **In Garden Reach the situation is pathetic, which cannot be described. It must be seen to be believed. Situation there cannot further worsen as it has already reached the worst stage.**

It is perhaps the fittest place to invoke P.C.A. Act.

The working hours for inspection of animals is 4 hours from 1.00 p.m to 5 p.m. (of course unofficially).During the course of inspection new animals keep entering. It is difficult to keep track. Both inspectors – one doctor representing Corporation and the other Govt- Doctor jointly examine the animals, sign the certificate as '**Fit**' or '**Not fit**' jointly and appropriate identification mark is put on the animal, as a token of permission to move inside the 'slaughtering hall' or for rejection enclosure respectively. **The identification marks can easily be wiped of with a piece of cloth. Butchers have mastered this act.**

DIFFICULT JOB OF INSPECTORS

For inspecting 250 animals, with non-stop inspection and in non-interfering (which is practically impossible) atmosphere joint inspectors get just one minute to inspect one animals & confirm that the animal is over 14 years of age and is unfit for work or breeding or the animal has become permanently incapacitated for work or breeding due to injury, deformity or any incurable disease – which are obligatory findings for recording in the body of the certificate issued as 'fit' for slaughter under subsection (2) of section 4 of the Act.

It is strongly emphasised that no Veterinary doctor, just in one minute by only casual visual, inspection can determine age of an animal (as more than 14 years old) to certify that it is more than 14 years old, and it is permanently incapacitated for work or breeding due to age, injury or deformity without appropriate clinical examination – **which is neither done nor possible in the 'Larage' that too in just one minute, in not very healthy & congenial surroundings and atmosphere.**

Conted.....8

Ground Reality No. 4

Only Cattle of 14 year 'or above age are 'fit for slaughter

Subsection (2) of section 4 of the Act permits slaughter of cattle only after they attain 14 years of age. Firstly this is against the Directive Primciples of the State policy laid down in Article 48 of the Constitution of India.

Secondly for 14 years the cattle /buffaloe lhas served man in many ways In fact very few cattle live up to 14 years of ages (maximum longevity of cattle being 17/18 years baring few exceptions). The cattle of this age fall in the category of **Senior Animal Citizens**. Senior citizens (humans) all over the world & now in India as well commanıd respect, draw sympathy & get all sorts of facilities. On the other hand under W/B animal slaughter control Act **Senior Animal Citizen** are put under gillotin . **Is it fair ?** Does it not come in cllash with Article 48 of the Constitution of India ? This is an only ethical point

Most important point however is, how to confirm by visual inspection (of one minute) of an animal (cattle) that it has attained age of 14 years. No birth certificate, no history, no health card & no original owners, (who could help the inspectors to determine the age) are available & only visual inspection is the criterion for disceming age

As a senior most Veterinary doctor of West Bengal, having spent more than 56 years in Veterinary profession I confess that I cannot find age of cattle after it has crossed 10 years of life. In fact no Veterinarian can judge exact age at this stage of life of cattle by visual inspection of one minute.This provision as it exists in the Act therefore is most misleading. It should be eliminated.

Ground Reality No. 5

Animals suffering from incurable disease can be 'Fit for Slaughter' even if less14 years ages

Why an animal (cattle) which suffers from incurable disease is given certificate as 'fit' to be slaughtered ? Firstly, who makes diagnosis & confirms the disease the animal is suffering from & on what basis the disease is considered incurable for declaring the animal as 'fit' for slaughter ? Secondly , Is it healthy for beef eaters to consume meet of animals which are suffering from an incurable disease ? How such action is permitted from human health point of view ? .

***Do the beef eaters know these facts** ?*

All diseases are curable these days. Cattle also suffer from Tuberculosis, which is now a curable disease in human beings . In cattle also it is a curable disease but the cost on therapy for cure is prohibitive. That is why generally in cattle it is not treated with success. Should we however call this disease as incurable and declare such animal as 'fit' for slaughter ? Cattle tuberculosis is communicable to human beings – the owner, the attendant, the butcher, long chain of persons in the beef marketing channel and ultimately the consumer Declaring cattle suffer from Tuberculosis as fit for slaughter is not in the interest of beef eaters

Conted.....9

We are making ourselves a laughing stock by making the consumer eat beef produced from a cattle suffering from tuberculosis or any other so called incurable disease, which ironically is declared as such by only visual examination . However the 'Inspectors' (Veterinay doctors) entrusted with the responsibility of declaring an animal as 'fit' or 'unfit' for slaughter on the basis of 'incurable disease' clause under subsection (2) of section 4 cannot confirm disease like tuberculosis during visual examination of the animal. They may only suspect but cannot confirm (without other aids & tests). Recording in the body of the certificate that the particular disease (in this case tuberculosis) is therefore arbitrary & not based on professional findings . All Veterinary experts, Research workers & scientists we are sure will support our contention & agree with our opinion.

Ground Reality No. 6

Unprodutive animal is fit for slaughter under Subsection (2) Section 4

Very often butchers present a cow or she buffalo before the 'inspectors' (Veterinary doctors) suffering from mastitis due to which the said animal has lost one or two parts of the Udder (which has four parts, each represented by one teat) pleads with explanation the 'the animal has lost productivity and is suffering from this incurable disease' so it is fit for slaughter .The argument holds no water. Expert Veterinary doctor knows full well that the animal presented before him will still breed & produce milk .The disease noticed by him is incurable in one or two parts of the Udder but the remaining two parts are still normal and in fact will produce comparatively milk more than two quarters would have produced had all the 4 parts of the Udder been normal. This is not only a scientific fact but my contention is based on practical experience .Obviously invoking of 'incurable disease' factor for declaring such animal as 'fit' for slaughter' is not only erroneous but professionally wrong on the part of the inspectors (Veterinary doctors)

Inspectors discharging their difficult duty in Tangra cattle slaughter house would have seen some cow or she buffalo produced before them with Udder highly swollen & painful (generally caused maliciously by unscrupulous butchers by infusing acid into udder through teat canal) just to influence mind of the inspector for getting the animal passed as 'fit for slaughter'. Under this Subsection . Such animal however cannot be certified as unproductive .

Ground Reality No. 7

The injury deformity and permanently incapacitated clause.

Subsection (2) of section 4 gives free hand to the inspectors to declare younger (less than 14 year's old) cattle as 'fit for slaughter' if such animals has however become incapacitated due to serious injury on deformity in their opinion .

The butchers cause injuries or deformity by using malicious and cruel methods to otherwise normal animals and then bring such animals to the lairage & produce for or inspection. Such instances are most common in Tangra slaughter houses . Animals are maimed / or given multiple fractures and then brought to the lairage tied on the hand carts .

Conted.....10

In such cases inspectors have no choice ,but to issue certificate as 'fit for slaughter' .Inspector s cannot dare to argue with Butchers. They are not competent to take action under P C A Act as neither they are armed with statutory powers, nor the Act is implemented in the slaughter houses .

Such heinous crime must be stopped & can be only stopped by enforcing P C A Act in the premises of the slaughter houses and inspectors engaged in the inspection of animal for slaughter empowering/appointing them as inspectors under P C A Act with statutory powers

Critical Comments

- *The procedure of inspection & examination therefore is nothing more than farce an eye wash. But inspectors are absolutely helpless & they deserve our sympathy.*

- *What percentage of inspected animals presented for inspection is declared 'Unfit for* ***slaughter****' ? Govt's. Records may be able to produce such data but as per our experience just less than half a dozen animals out of 250 animals presented are declared '****unfit****'.*

- *Even most of those declared today as unfit may be passed as fit for slaughter the next day or after a couple of days when presented for inspection , of course as new animals.*

- *The butchers or who own these animals, purchase them only for slaughter & they must get these passed as 'fit' for slaughter by 'hook or crook'. They never let their investment go waste.*

- *Obviously any cattle, which once reaches inside the lairage, is destined to be slaughtered whether under 'fit for slaughter' certificate or after being declared as not fit for slaughter once and again fit for slaughter when presented as new animal the next day* ***(We refrain to elaborate this point further).***

- *There is no provision in the Act to seize 'unfit for slaughter' animals & transport these to Gaushala or any Veterinary hospital to save its life by medical care, nursing or welfare attention.*

- *Do the inspectors differ in opinion as provided under subsection (3) of section 4.? Well, generally not. Firstly it comes in their mind why create problem for themselves and secondly when opinions differ, the superior Govt. Veterinary Officer,* ***who is to make final decision under this subsection & whose opinion is final, is not available at the*** *spot. He has to be present to re inspect animal on which dispute has arisen. Why to create problem for him? as he has to conduct further inspection for declaring an animal 'unfit'.*

- ***Easiest solution, therefore for the doctors is not to differ in opinion & cooperate (an unwritten code) and complete the inspection of line animals .The Commission may draw its own inference from this circumstantial evidence in regard to subsection (3).***

- ***Does the Govt . Call for any record for satisfying itself under subsection (6) of section 4?****.During tenure of 10 years of our representative Dr. D R Marwaha , as Joint Director & Director Veterinary Services W B, not a single incidence occurred when any records were called by the Govt . The inspection is obviously 'trouble-free' & smooth and Subsection 6 is not invoked.*

सत्यमेव जयते

Conted.....11

⇨ ***Commission may draw its own inference for these comment .Any case as provided under subsection (7) of section 4 has never been filed in the court of law under this subsection as far as we know.***

⇨ ***Why the Act allows slaughter of cattle above 14 years of age? Is 14 years age of cattle & Buffaloes discernible ? plain and simple answer to this question is No, Not Exactly by any Veterinary Doctor with any length of experience .***

SECTION 7

Section 7 of the Act prescribes penalties and punishment for any person who contravenes provision In the Act . Punishment & penalties spelt out are imprisonment term of which may extend to six months ; or with fine which may extend to Rupees one thousand or both

A point was raised that penlties and punishment should be enhanced. We believe however that since the enactment of this Act perhaps not a single case of punishment / penalties is on record What difference enhancement of penalty /punishment will make ? Commission may its own inference on this section .

SECTION 12

Section 12 : *Spells out powers of the competent authority* to grant exemption under the provisions of Section 12 . The State Government may , by general or special order and subject to such conditions as it may think fit to impose, exempt from the operation of this Act , the slaughter of any animal for any **religious , medicinal or research purposes** .

Let us go on record to say that since the enactment of the Act the State Govt has never granted exemption for any medicinal or research purpose . On the other hand exemptions were religiously granted by the State govt in the past on Bakrid day until the interventiorr of the Calcutta High Court in 82 . Obviously the exemptions was granted for religious purpose only to Muslim Community .

The West Bengal Govt had been providing exemption U/S 12 from the prohibition of slaughter of cow on Bakrid Day . Kedar Nath Brahamchari and others filed writ petition in the Calcutta High court against the State of West Bengal and others challenging the validity of exemption . The Calcutta High Court allowed the petition and issued mandamus to the respondents vide its Judgment dt 20/ 08/1982 reported in 1982 (2) Calcutta H N 293 . The State of West Bengal and others filed Civil Appeals Nos 6790 , 6791, 6792 , & 6794 of 1983 in the Supreme Court against the Judgement of Calcutta High Court, which were dismissed by the Supreme Court on 16/11/1994 reported in AIR 1995 sc 464 The supreme Court made some important observations (only a few are cited below), **which need be highlighted as under** .

> *' The preamble of the Act shows it was enacted to control the slaughter of certain animals as it was expedient to do so with a view to increase the supply of milk and to avoid the wastage of animal power necessary for improvement of agriculture'*

Conted.....12

' In this connection,Das C. J., referred to the historical background regarding cow slaughtering from the times of Mughal emperors . Mughal Emperor Babar saw the wisdom of prohibiting the slaughter of cows as and by way of religious sacrifice and directed his son Humayun to follow this. Similarly , Emperors Akbar , Jehangir , and Ahmed Shah , it is said , prohibited cow slaughter .In the light of this historical background it was held that total ban on cows slaughter did not offend Article 25 (1) of the Constitution' .

' In view of this settled legal position it becomes obvious that if there no fundamental right of a Muslim to insist on slaughter of healthy cow on Bakri Idd day , it can not be a valid ground for exemption by the State under section 12 which would in turn enable slaughtering of such cows on Bakri Idd '

' Therefore , it is not essential for Muslims to earn religion merit by insisting on sacrificing only healthy cows on Bakri Idd . Consequently, the State will not have any jurisdiction or power to invoke section 12 for fulfilling such optional religious practice of Muslim community '

' The effort made by learned counsel for the appellants to get any and every religious practice covered by section 12 also is of no avail for the simple reason that in the context of section 12 the religious practice must be. such which requires the invocation of exemption provision under section 12 so as to by pass the main thrust of section 4 for such an exercise non-essential practices can not be made the basis '

' We have given our anxious consideration to the rival contentions. In our view the decision rendered by the Division Bench of Calcutta high Court under appeal is unexceptionable and calls for no interference. We must keep in view the scheme of the Act for deciding the question in controversy '.

' The aforesaid relevant provision clearly indicate the legislative intention that healthy cows which are not fit to be slaughtered cannot be slaughtered at all . That is the thrust of section 4 of the Act. In other words there is total ban against slaughtering of healthy cows and other animals mentioned in the schedule under section 2 of the Act '.

सत्यमेव जयते

' Now it becomes clear that when there is a total ban under the Act so far as slaughtering of healthy cows which are not fit to be slaughtered as per section 4 (1) is concerned, if that ban is to be lifted even for a day , it has to be shown that such lifting of ban is necessary for subserving any religious medicinal or research purpose '.

' Even if we agree with learned counsel for the appellants that slaughter of a healthy cow on Bakri Idd is for a religious purpose, so long as it is not shown to be an essential religious purpose as discussed by as earlier section 12 of the Act can not be pressed in service for buttressing such a non-essential religious purpose '.

' Before parting we may mention that one preliminary objection was raised before the High Court about the petitioners' locus standi to move the writ petition . The High Court held that it was a public interest litigation and the writ petitioners have sufficient locus standi to move the petition. That finding of the High Court was not Challenged by any of the appellants. In our view rightly so as the writ petitioners representing a Hindu segment of society had felt aggrieved by the impugned exemption granted by the State . They had no personal interest but a general cause to project Consequently they had sufficient locus standi to move the petition .

Conted.....13

Rule 7 framed under the Act provides that such slaughter does not affect the religious sentiment of the neighbours of the person or person performing such slaughter and that the previous permission of State Government or any officer authorized by it is obtained before the slaughter . The case of the original writ petitioners before the High Court was based on religious sentiments and therefore they had moved this public interest litigation . In these circumstance no fault could be found with the decision of the High Court recognising locus standi of the original petitioners to move this public interest litigation which we have found to be justified on merits ' .

' In the result we confirm the decision of the High Court and dismiss these appeals .Interim reliefs granted earlier during the pendency of the appeals shall stand vacated .In the facts and circumstances of the case there will be no order as to costs'

Sd/- Kuldip Singh Sd/- B . L Hansaria Sd/-S B Majumdar

Ground Reality No 8

Ground Reality in pre and post Supreme Court order in respect of exemption under section 12 of the Act.

Before the supreme court agreed with the judgment of the Hon Calcutta High Court the W/B Govt used to notify by public notice that under section 12 of the Act slaughter of cattle is exempted from the provisions of the animal slaughter control Act . The ARD Deptt used to established about half a dozen camp offices within Calcutta corporation and Garden Reach Municipal area just to issue permits – on demand to any citizen , who so ever desires to slaughter a cow (by way of Kurbani-Sacrifice) . Nearly one lakh or a little more, permits were issued . About 80000 to 10 lakhs young Cows, Heifers, Calves were slaughtered in slaughter – houses , bus tees , lanes and by lanes , in private houses and courtyards as well as in some public places surrounded by compound wall There is all way spirit of competition – 'who brings most healthy unbred, pregnant cows for this Kurbani. In localities with mixed Hindu and Muslim population the people of the former community used to leave their houses for a day or two and return after 'everything' is over on sentimental thoughts' as they could not reconcile with thousands of cows being slaughtered before their eyes and in the presence of their children .

However the places in which such slaughter was allowed on Bakrid Day were specified by the concerned police authorities Cows were washed and decorated with vermilion and shining ribbons and slaughtered on foot – paths, roads unrestricted. It took two or more days for the corporation staff to remove offal's.

After the Supreme Court orders. Passed on November 16 1994 , the situation has not improved . Now there is no need of issuing permit .The ARD department has no duty to perform slaughters houses are kept closed on Bakrid Day. Cows , heifers ,calves are moved on hoof or matadors towards slaughtering places specified on Bkrid day openly and (even two day /prior to Bakrid such seem is visible

Conted.....14

The only difference which the Supreme Court order has made is recorded below :

Rampant slaughtering is done a openly, no permits are issued, No places for slaughter are specified no any body . It is open for any body to slaughter any cow, of any age , of any status of any variety or breed unchecked .

Obviously the Supreme Court order is implemented by the State Govt rigidly for neither giving exemption nor issuing any public notification in papers granting exemption, not opening camp. Offices by ARD Department for granting permits,but by closing slaughter houses (unofficial holiday) on Bakrid Day Number of cows heifers , calves slaughtered in one single day however remains same and may even be increased

AN APOLOGY

The P C A Act covers not only cattle but concerns all animals and birds. Also the Order for Meat less Day is not restricted to beef (except poultry meat). During presentation it was decided by our management committee to rest rested our presentation to Animal Slaughter Control Act only . Hence no written presentation is included in this Memorandum of poiees which where not presented orally by Dr Marwaha . My apologies

I thank the chairman and the members for keeping patience during in my presentation.

Dr. D R Marwaha
Rd . Advisor Animal Husbandry West Bengal
Member W/B State Animal Welfare Board
Vice – President :All Lovers of Animals Society
Calcutta . INDIA .

ANNEX IV (4)

Paragraph 22

अब तो चेतें

[आचार्य श्रीविनोबाभावेजीका संदेश]

'हिन्दुस्थान किसानोंका मुल्क है। खेतीका शोध भी हिन्दुस्थानमें ही हुआ है। गाय-बैलोंकी अच्छी हिफाजतपर हिन्दुस्थानकी खेती निर्भर है। हिन्दुस्थानी सभ्यताका नाम ही 'गोसेवा' है, लेकिन आज गायकी हालत हिन्दुस्थानमें उन देशोंसे कहीं अधिक खराब है, जिन्होंने गोसेवाका नाम नहीं लिया था। हमने नाम तो लिया पर काम नहीं किया। जो हुआ सो हुआ। लेकिन अब तो चेतें।'

***

गोरक्षाके लिये क्या करना चाहिये?

[महामना पण्डित श्रीमदनमोहनजी मालवीयका संदेश]

'यदि हम गौओंकी रक्षा करेंगे तो गौएँ भी हमारी रक्षा करेंगी। गाँवकी आवश्यकताके अनुसार प्रत्येक घरमें तथा घरोंके प्रत्येक समूहमें एक गोशाला होनी चाहिये। दूध गरीब-अमीर सबको मिलना चाहिये। गृहस्थोंको पर्याप्त गोचरभूमि मिलनी चाहिये। गौओंको बिक्रीके लिये मेलोंमें भेजना बिलकुल बंद कर देना चाहिये; क्योंकि इससे कसाइयोंको गायें खरीदनेमें सुविधा होती है। किसानोंकी स्थितिके सुधारके लिये दिये जानेवाले इन सुझावों तथा अन्य ऐसे सुझावोंको कार्यरूपमें परिणत करनेके लिये ग्राम-पंचायतोंका निर्माण होना चाहिये।'

भारतकी सुख-समृद्धि

(महात्मा गाँधीजीका संदेश)

भारतकी सुख-समृद्धि गौ और उसकी संतानकी समृद्धिके साथ जुड़ी हुई है ।

गोरक्षाके लिये क्या करना चाहिये ?

(महामना पण्डित मदनमोहनजी मालवीयका संदेश)

गोरक्षाके विषयमें आजतक जो कुछ जानकारी प्राप्त हुई है, उसके प्रसारके लिये आपका प्रयास अभिनन्दनीय है । भगवान् आपको उसमें सफलता दें । यदि हम गौओंकी रक्षा करेंगे तो गौएँ भी हमारी रक्षा करेंगी । गाँवकी आवश्यकताके अनुसार प्रत्येक घरमें तथा घरोंके प्रत्येक समूहमें एक गोशाला होनी चाहिये । दूध गरीब-अमीर सबको मिलना चाहिये । गृहस्थोंको पर्याप्त गोचरभूमि मिलनी चाहिये । गौओंको बिक्रीके लिये मेलोंमें भेजना बिल्कुल बंद कर देना चाहिये, क्योंकि इससे कसाइयोंको गायें खरीदनेमें सुविधा होती है । किसानोंकी स्थितिके सुधारके लिये दिये जानेवाले इन सुझावों तथा अन्य ऐसे सुझावोंको कार्यरूपमें परिणत करनेके लिये ग्राम-पंचायतोंका निर्माण होना चाहिये ।

जगत्में गौ गौरवके साथ जीती रहे

(गो-जीवन श्रीश्रीबालकृष्ण मार्तण्ड चौबेजी महाराजका संदेश)

गावस्तुष्टाः प्रयच्छन्ति वरानपि सुदुर्लभान् । गावो लक्ष्म्याः सदा मूलं गोषु दत्तं न नश्यति ॥

धर्म, अर्थ, काम और मोक्ष—इन चारों पुरुषार्थोंके साधनका मूल गो-देवता ही है । वेद, शास्त्र, पुराण और साधु-संतोंने इस देवताकी मुक्तकण्ठसे प्रशंसा की है । हिंदूधर्मका तो सौभाग्य और वैभव गोमाता ही है । हिंदूधर्ममें अनेकों पंथ, अनेका विचार और अनेकों देवता हैं; परन्तु गोमाता सभीके लिये वन्दनीय और पूजनीय है । हमारे राष्ट्रका जीवन गोमातापर ही अवलम्बित है । गोमाता सुखी तो राष्ट्र सुखी । गौकी हत्या तो राष्ट्रकी भी हत्या । आज राष्ट्रमें अपरिमित प्रमाणमें गोहत्या हो रही है । फलस्वरूप हमारे घर और खेत—सभी सूने, अनाथ और बिना नाविककी नौकाके सदृश असहाय हो गये हैं । बैलके अतिरिक्त खेतीका काम करनेवाला दूसरा साधन न होनेसे खेतोंके काम रुक गये हैं । दूध और घीके अभावसे भारत-संतान अल्पायु हो गयी, सबका स्वास्थ्य नष्ट हो गया और इस प्रकार राष्ट्र मृत्युपथकी ओर अग्रसर होने लगा है ।

देशको इस राष्ट्रघात और धर्मघातसे बचानेके लिये निमिषमात्र भी विलम्ब न करके तत्काल गो-सेवामें लग जाना चाहिये । आज केवल गोपूजा और गो-प्रदक्षिणासे ही गोसेवा नहीं हो सकती । प्रत्येक आर्य स्त्री-पुरुष जबतक गो-दुग्ध और गो-दुग्धान्नका सेवन करनेकी प्रतिज्ञा न करेंगे, तबतक गो-सेवा पूरी नहीं होगी । अतएव 'कल्याण'के लाखों पाठकोंसे मेरी नम्र विनती है कि आप सब लोग गव्य पदार्थके ही उपयोग करनेका व्रत ले लें और सभी गोव्रतधारी बन जावें । ऐसा करनेसे गोहत्या रुकेगी, गायें पुष्ट होंगी, गायोंके संवर्द्धनकी ओर ध्यान दिया जायगा, गोहत्यासे द्वेष उत्पन्न होगा, सरकारको भी इस सम्बन्धमें अधिक सोचना पड़ेगा, कानूनके द्वारा गोहत्या बंद करानेकी कोशिश होगी, गाय सुखी होगी और गायके साथ-साथ राष्ट्र भी सुखी हो जायगा ।

गोविषयक ज्ञानके अभावसे अज्ञानान्धकार रहा और उससे राष्ट्रकी बड़ी हानि हुई । गोवर्धन-संस्थाने ५००० पृष्ठका सर्वाङ्गपूर्ण गो-ज्ञान-कोश प्रकाशित करना निश्चय किया है । इसमें गोविषयक वाङ्मयका प्रचुर संग्रह होगा । 'कल्याण'का यह 'गो-अङ्क' गो-ज्ञान-सूर्यका अरुणोदय है । अब थोड़ी देरमें ही (कुछ समयके बाद ही) प्रभु-कृपासे गोज्ञान-कोशरूपी दिवाकर प्रकट होगा । इस ओर सब भारतवासी ध्यान दें, यही अभिलाषा है । 'कल्याण'का 'गो-अङ्क' निकाला गया, इसके लिये बधाई ।

गोसेवा राष्ट्रीय धर्म है

(श्रीमती जानकीदेवीजी बजाजका संदेश)

'कल्याण'ने रामायण, गीता इत्यादिपर जो विशेषाङ्क निकाले, उन्हींके मुताबिक गोसेवा-विशेषाङ्क निकालकर गोसेवाको जो प्राधान्य दिया है, उसका मैं स्वागत करती हूँ। गोसेवा हिंदूधर्मका एक विशेष अङ्ग है, ऐसा माना गया है। आज जब कि महायुद्धमें सैनिकोंके लिये गायोंकी जो बेहद कत्ल हुई है, उसके कारण भारतवर्षमें पिछले बीस-पचीस वर्षोंमें जो थोड़ा दूध था, वह भी कम हो गया है, और बैलोंके अभावमें कई जगह खेती बिना बोये पड़ी रही। ऐसी अवस्थामें हिंदू, मुसल्मान, ईसाई इत्यादि सभी भारतवासियोंके लिये गोसेवा एक राष्ट्रधर्म हो गया है। आजके समान कठिन समयमें यदि हम सब भारतवासी एक होकर गोसेवाके राष्ट्रीय धर्मका पालन न करेंगे तो मुझे डर है कि गाय हिंदुस्थानसे मिट जायगी। ऐसे समयपर गोरक्षिणी सभाओंका कर्तव्य है कि वे आज अपनी पूरी ताकत गोवंशके नस्ल-सुधार और गायोंका दूध बढ़ानेमें लगा दें।

'कल्याण' गोसेवाका खास अङ्क निकालकर इस राष्ट्रधर्मको समाजके सामने रखनेकी जो कोशिश कर रहा है, उसके लिये मैं 'कल्याण'को गोसेवा-सङ्घकी ओरसे बधाई देती हूँ। और समाज उसका ठीक स्वागत करेगा, ऐसी आशा करती हूँ।

गोरक्षा मुख्य कर्तव्य है

(पं० श्रीगोविन्दवल्लभजी पंतका संदेश)

गोसेवा और गोवंशकी उन्नति भारतीय संस्कृतिके अभिन्न अङ्ग हैं। वेद, पुराण, धर्मशास्त्र, इतिहास आदि सभी ग्रन्थोंमें गोमाताकी महिमा गायी गयी है। भारतजनित सभी अन्य धर्मोंका इस विषयमें हिंदुओंके साथ एक ही मत है। हिंदू, बौद्ध, जैन, सिख—सभी धर्मावलम्बियोंके लिये गोरक्षा धार्मिक दृष्टिसे मुख्य कर्तव्य है। हिंदू-समाजमें हजारों वर्षोंसे गौका स्थान जननी—माताके तुल्य माना गया है। गायको कामधेनु और सुरभिकी पदवी प्राप्त है। केवल सांसारिक दृष्टिसे ही देखा जाय, तो भी हमारे ऐहिक जीवनके लिये गोवंशकी उन्नतिकी परम आवश्यकता है। जन्मसे लेकर अन्तिम समयतक प्रत्येक पदमें हमें गोवंशकी सहायता चाहिये। गायके दूधके बराबर बलदायी और हितकारी कोई अन्य खाद्य पदार्थ संसारमें नहीं है। पाश्चात्य सभी वैज्ञानिकोंका भी अब तो यह निश्चित मत है कि गायके दूधके प्रयोगसे मनुष्य जितना हृष्ट-पुष्ट और दीर्घजीवी हो सकता है, उतना और किसी प्रकारके भोजनसे नहीं हो सकता। हमारे देशमें हमारे दैनिक जीवनकी अत्यावश्यक सामग्री भी गाय और बैलके श्रम और देनके बिना प्राप्त नहीं हो सकती। दूध, दही, घी, मक्खनके अतिरिक्त गेहूँ, चावल, ज्वार, बाजरा आदि—जिनके बिना धनी और निर्धन कोई भी जीवित नहीं रह सकते—बिना गोवंशके परिश्रमके उपलब्ध नहीं हो सकते। इसी तरह कपास, जूट वगैरह—जिनसे हम सबके वस्त्र बनते हैं—उनकी मेहनतके बिना नहीं मिल सकते। हमारा देश कृषिप्रधान है और जमीन तोड़ने और हल जोतनेसे लेकर बाजारमें बैलगाड़ियोंद्वारा नाज पहुँचानेतकका कोई भी खेतीका काम और किसी ढंगसे चल नहीं सकता। इस युगमें भी सब तरहके वैज्ञानिक आविष्कारोंके होनेपर भी हमारे देशमें सभी धर्मावलम्बियोंके सामाजिक और आर्थिक जीवनका प्रधान आधार गोवंश ही है। ऐसी अवस्थामें सभी भारतवासियोंको गोवंशके ह्रास और अवनतिको रोकने और उसकी वृद्धि और उन्नतिके उपायोंको कार्यान्वित करनेमें सहयोग देना चाहिये। हमारी तो प्रत्येक धार्मिक और आर्थिक, इहलौकिक और पारलौकिक उद्देश्यकी सिद्धिके लिये यह नितान्त परमावश्यक है।

गोबरसे चौका लगाना चाहिये

लक्ष्मीश्च गोमये नित्यं पवित्रा सर्वमङ्गला। गोमयालेपनं तस्मात् कर्तव्यं पाण्डुनन्दन ॥

(स्कन्द० अ० रे० ८२ । १०८)

गोबरमें परमपवित्र सर्वमङ्गलमयी श्रीलक्ष्मीजी नित्य निवास करती हैं। इसलिये गोबरसे लेपन करना चाहिये।

गाय-बैलोंके लिये पर्याप्त घास-चारा मिलना चाहिये; इसके लिये पर्याप्त गोचरभूमि होनी चाहिये और चारेकी फसलें तैयार करनी होंगी। यह काम इस समय कठिन हो गया है; पर आवपाशीकी सुविधाएँ बढ़नेसे सरल हो जायगा। कुछ वर्षोंसे हमलोग 'अधिक अन्न उपजाओ' का आन्दोलन कर रहे हैं; पर इसके साथ ही 'अधिक चारा उपजाओ' का भी प्रचार करना होगा, इसीसे पशुओंका पूरा उपयोग किया जा सकेगा। काम आसान नहीं है, पर सब सहयोग दें तो बन सकता है।

मुझे विश्वास है कि 'कल्याण' का यह विशेषाङ्क गोरक्षासम्बन्धी अपने विविध निबन्धोंके द्वारा इस विषयमें जानकारी और उत्साह उत्पन्न कर अपने सब पाठकोंको इस अत्यन्त महत्त्वपूर्ण कार्यमें सहयोग देनेमें प्रवृत्त करेगा।

एम्. हैलेट

गवर्नर, युक्तप्रदेश

गौका पालन—मुख्य कार्य

(माननीय सर जोगेन्द्रसिंहजी, भारत-सरकारके शिक्षा, स्वास्थ्य और भूमि-सदस्य महोदयका संदेश)

मेरा विश्वास है 'कल्याण' बहुत ही उपादेय कार्य कर रहा है। मेरे विचारमें गोरक्षाका अर्थ है—गौओंक अच्छी तरहसे खिलाना, उनकी पूरी सँभाल रखना और पशुप्रबन्धके नियमोंका पालन करना। जिस रक्षाक अभिप्राय केवल भूखों मरते हुए जानवरोंको पाल रखनेसे है, उससे कोई काम नहीं निकलता। यदि हम सर्व साधारण जनताको पोषक आहार दिलाना चाहते हैं तो दूधका होना जरूरी है। जितना दूध होना चाहिये उतना तभी हो सकता है जब हम गौओंको अच्छी तरह खिलावें और अच्छी जातिकी गौओंको चुनकर उनक वंश-विस्तार करें। जहाँतक दुग्धोत्पादनका सम्बन्ध है, भैंसका भी कम महत्त्व नहीं है। मैं इस समस्याप भी भलीभाँति ध्यान दे रहा हूँ। मैं आपके 'गो-अङ्क'की पूरी सफलता चाहता हूँ।

अब तो चेतें

(श्रीविनोबाजी भावेका संदेश)

हिंदुस्थान किसानोंका मुल्क है। खेतीका शोध भी हिंदुस्थानमें ही हुआ है। गाय-बैलोंकी अच्छ हिफ़ाजतपर हिंदुस्थानकी खेती निर्भर है। हिंदुस्थानी सभ्यताका नाम ही 'गोसेवा' है। लेकिन आज गायक हालत हिंदुस्थानमें उन देशोंसे कहीं अधिक खराब है, जिन्होंने गोसेवाका नाम नहीं लिया था। हमन नाम तो लिया, पर काम नहीं किया। जो हुआ, सो हुआ। लेकिन अब तो चेतें।

तीन माताएँ

(डा० श्री बी० पट्टाभि सीतारामैय्याका संदेश)

हिंदुस्थानमें तीन माताएँ मानी जाती हैं, उनमेंसे एक गौ है। ये तीन माताएँ हैं—गोमाता, भूमाि और गङ्गामाता। ये तीनों हिंदुस्थानके लोगोंको पोसती हैं—गोमाता बच्चोंको दूध पिलाती और उन्हें पाल पोसकर बड़ा करती है, भूमाता और गङ्गामाता परस्पर मिलकर फसल खड़ी करती और मनुष्योंको अन्न त पशुओंको चारा देती हैं। इसलिये तीनों पूजी जाती हैं।

गौके प्रति हमारा कर्त्तव्य

(डा० श्रीश्यामाप्रसाद मुकर्जीका संदेश)

दैवकी कैसी विचित्र गति है कि जिस देशका तीन-चौथाई जनसमाज गौको माता कहकर पूजता है, वहाँ तो गोवंशका दिन-दिन ह्रास हो और जहाँ लोग गौका मांस खाते हैं, वहाँ वह फले-फूले ! यह बहुत प्रसिद्ध बात है कि इंग्लैंड, हॉलैंड तथा जर्मनी-जैसे देशोंमें गौएँ हिंदुस्तानकी सर्वश्रेष्ठ गौओंकी अपेक्षा औसत हिसाबसे तिगुना-चौगुना दूध देती हैं ।

गोवंशकी इस दशाका सुधार केवल बच्चों, बीमारों और बूढ़ोंके लिये दूधकी व्यवस्था करनेके निमित्त ही नहीं, प्रत्युत कृषिकर्मके लिये भी अत्यन्त आवश्यक है । नीरोग गौ बलवान् बछड़ा-बछिया पैदा करेगी और इससे दूधका उत्पादन तो होता ही रहेगा, साथ ही खेतीको भी मदद मिलेगी, जिसपर हिंदुस्तानके प्रतिसैकड़े ७५ लोग जीते हैं । अतः गौके हित और सुखमें ही हिंदुस्थानकी इस महान् जनताका हित, सुख, आरोग्य और समृद्धि है ।

हमारे पूर्वपुरुष सदासे ही गोरक्षाका महत्त्व जानते थे । वेदोंसे लेकर पुराणोंतक सर्वत्र शास्त्रोंके ये ही विधान हैं कि गौकी रक्षा करो, गौका पूजन करो । मानव-जीवनके सभी अङ्गोंका अपने अंदर समावेश करनेवाले हिंदूधर्मने गौके प्रति मनुष्योंके कर्तव्यका विधान विशेष आग्रहके साथ किया है । शास्त्र इसकी रक्षा और पूजा करनेको कहते हैं और संस्कृतका काव्य-नाटक-इतिहासादि सारा साहित्य उसे 'माता' कहकर पुकारता है—माताके प्रति वत्सका जो आत्यन्तिक स्नेह होता है, वही उसके प्रति होना चाहिये । पर शास्त्रोंने केवल भावनावश ही नहीं, प्रत्युत भारतीय जीवनकी आवश्यकताओंको वास्तविक रूपमें समझकर ही मनुष्योंके साथ गौका यह नाता जोड़ा है ।

हिंदुओंके पतनके साथ गौके लिये भी बुरे दिन आये । गौके लिये जो प्रगाढ़ आदर और स्नेह हिंदुओंका अपना विशेष गुण था, वह नष्टप्राय हो गया । हम हिंदुओंके पूर्वपुरुषोंका गौके प्रति कैसा भाव था, यह महाराजा दिलीप और उनकी महारानीकी प्रगाढ़ गोभक्ति तथा आदर एवं प्रेमयुक्त सेवा देखनेसे पता लगता है । पर जो आदर्श हमारे पूर्वपुरुष हमारे सामने रख गये, उसका हमने क्या आदर किया ?

गौके प्रश्नका सर्वाङ्गीण विचार करनेके लिये 'कल्याण' का विशेषाङ्क प्रकाशित करना ठीक ही है । इससे बहुत लोग गौके प्रति अपना कर्तव्य विचारने लगेंगे और हममेंसे कुछ तो अपने उस कर्तव्यका पालन करनेमें भी प्रवृत्त होंगे, जो हमारे धर्मने हमारे लिये नियत किया है और देशकी आर्थिक दुरवस्था जिसका तकाजा कर रही है । 'कल्याण' का यह कल्याणमय उद्देश्य सफल हो ।

गौके लिये सच्चा यज्ञ

(सर चुन्नीलाल बी० मेहता, के० सी० एस० आई० का संदेश)

मैं यहाँ इस विषयके कोई आँकड़े उपस्थित नहीं करना चाहता, न गौकी कृषि-विषयक उपयोगिता और मनुष्यके लिये उसके दूधकी आवश्यकताके सम्बन्धमें ही कुछ कहना चाहता हूँ । इसके बारेमें पर्याप्त साहित्यका निर्माण हो चुका है । इस साहित्यमें नयी चीज डा० राइटकी रिपोर्ट है, जो कुछ वर्ष पहले प्रकाशित हुई थी । डा० राइटको भारत-सरकारने यहाँ बुलाया था, इसलिये कि वे देशमें दौरा करें और भिन्न-भिन्न संस्थाओं और सब प्रान्तोंके कृषि-विभागोंसे वे कुछ बातें मालूम हो सकें, उनका संग्रह करें और ऐसे काम सुझावें, जो उनके विचारमें करने योग्य हों । कृषि-विषयक अनुसंधान करनेवाली इम्पीरियल कौंसिलके 'इंडियन फार्मिंग' नामक पत्रके ५ मई १९४५के अङ्कमें जो नवीनतम बातें प्रकाशित की गयी हैं, उनसे यह प्रमाणित होता है कि गौओंकी नस्ल सुधारी जा सकती है और सुधार एकाध पीढ़ीके अंदर ही किया जा सकता है । उसमें यह कहा गया है—

'शाहीवाल गौओंका यहाँतक सुधार हुआ है कि औसतके हिसाबसे इस जातिकी प्रत्येक गौ सन् १९१४ में जहाँ प्रतिदिन ६ रतल दूध देती थी, वहाँ सन् १९४४में प्रतिदिन २१ रतलसे अधिक देने लग गयी । थारपरकर जातिकी दोमोष दूध भी लगभग १० वर्षोंमें इसी सीमातक बढ़ाया जा सका है । दोनों ही जातियोंकी गौओंके दूधमें घृतांश

(देशरत्न बाबू श्रीराजेन्द्रप्रसादजीका संदेश)

भारतवर्षमें गोपालन सनातन धर्म है। आज भी हिंदू, सिख, जैन इत्यादि सभी गोपालनको अपना धर्म समझते इसके लिये मुसल्मानोंके साथ समय-समयपर झगड़े हो जाया करते हैं, यहाँतक कि खून-खराबी भी हो जाती है गौको किस तरह स्वस्थ और सुखी रक्खा जा सकता है, यह हम भूल गये हैं। आज संसारभरमें सबसे अधिक गो संख्या इसी देशमें है। पर अधिकांश स्थानोंमें गोवंशकी अवस्था अत्यन्त शोचनीय और हृदयविदारक है। मूल कारण देशकी गरीबी है। जो किसान अपना पेट नहीं भर सकता, वह अपनी गायों और बैलोंका पेट कहाँतक कैसे भर सकता है। आजकलके वैज्ञानिक विचारवाले अक्सर कह दिया करते हैं कि इतने जानवरोंका रहना अर्थ विरुद्ध (uneconomic) है; इसलिये जबतक ऐसा प्रबन्ध न हो जाय कि केवल काम देनेवाले जानवरों खिलानेका भार हमपर रह जाय, तबतक न तो जानवरोंकी नस्ल सुधर सकती है और न उनको पेट भर खाना ही सकता है। सभी समाजोंमें—चाहे वह मनुष्योंका हो, चाहे जानवरोंका समूह हो—कुछ ऐसे व्यक्ति अवश्य होते जन्मसे ही बेकार होते हैं और एक बड़ी संख्या ऐसे व्यक्तियोंकी होती है, जो बुढ़ापेके कारण अथवा बीमारीके बेकार हो जाते हैं। मनुष्य-समाजमें भी ऐसे बेकार लोगोंकी जितनी देख-भाल होनी चाहिये, आजकल नहीं होती संसारकी राजशक्तियाँ इस प्रयत्नमें लगी हैं कि ऐसे लोगोंके लिये क्या प्रबन्ध किया जाय। अभीतक किसीने यह नहीं पेश किया है कि उनको जीवित रखना अनावश्यक बोझ ढोना है और इसलिये औरोंके हितके लिये कोई ऐसा पूर्ण साधन निकाला जाय, जो उनका अन्त कर दे। पर जानवरोंके सम्बन्धमें यह बात बहुधा सुननेमें आती ऐसे जानवरोंको समाप्त कर देनेसे ही दूसरोंको आराम मिल सकता है। इसी नीतिके अनुसार अनेक देशोंमें ज्यादा जानवर नहीं रहने दिये जाते। भारतवर्ष इस नीतिका अवलम्बन नहीं कर सकता; इसलिये यह आवश्यक कोई ऐसा उपाय सोच निकाला जाय, जिससे सच्ची गोरक्षा हो सके और अपंग तथा बेकार हुए जानवरोंकी हत्या होवे और अच्छे जानवर भी सुखी हो सकें। मैं समझता हूँ कि यह काम आसानीसे हो सकता है। केवल अन्ध-विश काम नहीं चलेगा, बुद्धि और विवेकसे काम लेना चाहिये।

जिस प्रकार मनुष्य-समाजमें एक या दो व्यक्ति परिश्रम करके इतना पैदा कर सकते हैं कि केवल अपना बल्कि अपने आश्रितजनोंका भी भरण-पोषण कर सकें, उसी तरह जानवरोंसे भी इस तरह काम कराया जा सकता है अपने और दूसरे कई जानवरोंके लिये भी काफी पैदा कर सकें। इसका अर्थ है कि खेतीका काम बुद्धिमानीसे जाय, जिसमें पैदावार बढ़ जाय। जानवरोंके लिये भी जमीन रक्खी जाय, जिसमें चारा पैदा किया जाय और कुछ चरागाह यानी गोचरका काम दे। गोवंशकी नस्ल सुधारी जाय, जिससे दूध भी अधिक मात्रामें मिले और बछड़े मजबूत और मेहनती निकलें। साँड़ यों ही छोड़ देना अब बुद्धिमानी नहीं है। गायोंके अनुपातसे अच्छी नस्लके रक्खे जायँ, जो उस नस्लसे मिलती-जुलती गायोंकी सेवा कर सकें और गायोंको ऐसे-वैसे भटकते-फिरते साँड़ोंसे करने दिया जाय। पर यह भी आवश्यक है कि मरे हुए पशुओंसे जो कुछ मिल सकता है, वह काममें लाया सबसे अधिक बाधक अन्धविश्वास इसी बातमें होता है। मरे हुए पशुओंके चाम, मांस, हड्डी, चर्बी, सींग, इत्यादिसे जो कुछ लाभ उठाया जा सकता है, उठाना चाहिये। ये सब चीजें काममें आ सकती हैं और खे पैदावार बढ़ानेमें भी बड़ी सहायक हो सकती हैं। यदि ऐसा प्रबन्ध किया जाय कि गोवंशके मूत्र और गोबरसे लेक जानेपर शरीरके प्रत्येक अंशको काममें लगा दिया जाय तो इसमें संदेह नहीं कि अच्छे जानवर अपने परिश्रमके इन सब चीजोंसे बहुत सहायता दे सकते हैं। और कमजोर और बूढ़े जानवर केवल अपने मल-मूत्र और शरीरके बड़ी सहायता पहुँचा सकते हैं। इसको स्पष्टीभूत बनानेके लिये रूढ़ियोंको छोड़ना होगा और मरे पशुके मांस हड्डीको इस योग्य बना लेना होगा कि वह खादका काम दे सके। और दूसरे-दूसरे अंशोंका भी योग्य उपयोग किया सकेगा। चमड़ेका उपयोग सभी लोग बिना हिचक करते हैं। दूसरे अंशोंका भी क्यों न किया जाय? जबतक इस इस समस्यापर विचार करके योजना तैयार न की जायगी, गोवंशकी रक्षा दिन-प्रति-दिन कठिन होती जायगी। समय है, सच्ची सेवा और गो-पालनका उपाय सोच निकालना चाहिये।

जाय। कटारपुरकी पावन भूमि आज भी हमें गोरक्षाकी प्रेरणा देती है।

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अनशन करते हुए दो गोभक्त बलिदानी

[क] श्रीऋषिस्वरूप ब्रह्मचारी

सन् १९६६में गोहत्याके कलंकको मिटानेके लिये पूज्य संत श्रीप्रभुदत्तजी ब्रह्मचारी महाराज तथा पुरीके जगद्गुरु शंकराचार्य स्वामी श्रीनिरंजनदेवतीर्थजी महाराजने क्रमश: वृन्दावन तथा पुरीमें अनशन किया था।

श्रीऋषिस्वरूप ब्रह्मचारी धर्मसम्राट् स्वामी श्रीकरपात्रीजी महाराज तथा शंकराचार्य स्वामी श्रीकृष्णबोधाश्रमजी महाराजके अनन्य भक्त थे। वे धर्मसंघके एक सक्रिय कार्यकर्ता तथा गोसेवक प्रचारक थे। जगह-जगह हाथमें झंडा लेकर पहुँच जाते तथा नगर या कस्बेको 'गोमाताकी जय हो' 'गोहत्या बंद हो'के नारोंसे गुंजा डालते थे। उन्होंने दिल्लीके यमुना-तटपर स्थित 'धर्मसंघ-भवन'में २० नवम्बर, १९६६को गोहत्या-बंदीकी माँगको लेकर अनशन किया तथा १० दिन बाद ३० नवम्बरको गौ माताकी रक्षाके लिये बलिदान दे दिया।

[ख] श्रीमेहरचन्द पाहूजा

उधर वृन्दावनमें पूज्य प्रभुदत्तजी ब्रह्मचारीके साथ गोभक्त मेहरचन्द पाहूजा भी २० नवम्बर १९६६को अनशनपर बैठे। जब उनकी शारीरिक स्थिति बहुत कमजोर हो गयी तो अनेक गोभक्त संतोंने उनसे अनशन त्यागनेकी अपील की, किंतु उन्होंने उत्तर दिया—'गौ माताके लिये प्राणोत्सर्गसे बढ़कर मैं दूसरा धर्म नहीं मानता।' अन्तमें ३१ दिसम्बरको उन्होंने अपने प्राणोंका उत्सर्ग कर दिया।

गौ माताकी रक्षाके लिये अनशन करते हुए बलिदान देनेवाले ये दोनों महान् गोभक्त 'गोरक्षा-आन्दोलन'के इतिहासमें अविस्मरणीय रहेंगे।

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गोभक्त लाला हरदेवसहायजी

परम गोभक्त लाला हरदेवसहायजी 'गोरक्षा-आन्दोलन'के अग्रणी सूत्रधारोंमेंसे थे। गोवंशकी रक्षा तथा गोसंवर्धनके लिये उन्होंने अपना जीवन ही समर्पित कर दिया था। उन्होंने राष्ट्रकी स्वाधीनतासे लेकर राष्ट्रभाषा हिन्दीके प्रचार तथा राष्ट्रमाता गायकी रक्षाके लिये जो कार्य किया वह अविस्मरणीय रहेगा।

लालाजीका जन्म संवत् १९४९, मार्गशीर्ष मासके पञ्चमी तिथिको हरियाणाके हिसार जिलेके सातरोड गाँवमें लाला मुसद्दीलालजीके घर हुआ था। लालाजी बचपनसे ही राष्ट्रभक्तिके रंगमें रँग गये थे। उन्हें देववाणी-संस्कृत भाषासे विशेष प्रेम था तथा इसीलिये वेदों, उपनिषदों और पुराणोंके प्रति उनके मनमें बचपनसे ही अनन्य श्रद्धा थी। स्वदेशी वस्तुओंके प्रति निष्ठा होनेके कारण उन्होंने विदेशी कपड़ेकी जगह हाथसे बुने सूतके कपड़े पहननेका संकल्प ले लिया था।

उन्हें लाला लाजपतराय, महामना मालवीयजी तथा लोकमान्य तिलकने विशेष प्रभावित किया था। लालाजी अंग्रेजी शिक्षाकी जगह हिंदी तथा संस्कृतमें शिक्षा दिये जानेके प्रबल समर्थक थे। उन्होंने हरियाणाके ६५ गाँवोंमें विद्यालय खुलवाकर हिंदी तथा संस्कृतका प्रचार किया।

लालाजीने 'स्वाधीनता-संग्राम' में सक्रिय भाग लिया। सन् १९२१ तथा १९४२ के 'भारत छोड़ो' आन्दोलनमें वे सत्याग्रह करते हुए जेल गये थे। सन् १९२१में निमावली (पंजाब) की जेलमें वे स्वामी श्रद्धानन्दजीके साथ रहे। स्वामी श्रद्धानन्दजी गीताके प्रति अनन्य निष्ठा रखते थे। लालाजीको गीताके प्रति लगाव स्वामीजीके प्रवचनको सुनकर ही हुआ था।

सन् १९३९ में हिसार जिलेमें भीषण अकाल पड़ा तथा गोवंश भूखा मरने लगा तो लालाजीने प्रख्यात गोभक्त ज० ना० मानकरजीके साथ मिलकर गोवंशकी सेवाके लिये अपनेको समर्पित कर दिया। उन्होंने गाँव-गाँव जाकर गायोंके लिये चारा इकट्ठा किया तथा दुर्भिक्ष-पीड़ित महिलाओंके लिये 'सूत-कताई-केन्द्र' भी स्थापित किया।

लालाजीका सपना था कि देश स्वाधीन होते ही गोवंशकी हत्याका कलंक तुरंत दूर कर दिया जायगा, किंतु जब उन्होंने देखा कि स्वाधीनताके बाद गोहत्याको और ज्यादा प्रोत्साहित किया जा रहा है तथा नये-नये बूचड़खाने खोलकर गोमांसका निर्यात तक शुरू कर दिया गया है तो उनकी आत्मा कराह उठी। उन्होंने प्रधान मन्त्री नेहरूजी, राष्ट्रपति डॉ० श्रीराजेन्द्रप्रसाद आदिसे मिलकर तथा पत्र-व्यवहार कर गोहत्यापर प्रतिबन्ध लगानेकी माँग की। किंतु

प्रधान मन्त्रीके हठके कारण गोहत्यापर प्रतिबन्ध नहीं लगाया जा सका।

लालाजी 'भारत-सेवक-समाज' तथा सरकारी संस्थानोंके माध्यमसे गोरक्षाका कार्य करते थे। सन् १९५४ में वे महान् संत स्वामी श्रीकरपात्रीजी महाराज तथा संत श्रीप्रभुदत्तजी ब्रह्मचारीके सम्पर्कमें आये। ब्रह्मचारीजीके साथ मिलकर उन्होंने कलकत्ता हत्याके लिये जानेवाली गायोंको बचाया। इसके बाद उन्होंने ४ फरवरी १९५४ को प्रयाग-कुम्भपर 'गोहत्या-निरोध-समिति' की स्थापना की। संत प्रभुदत्त ब्रह्मचारीजीके साथ मिलकर उन्होंने मथुराके कसाईखानेपर सत्याग्रह किया। धर्मसंघके तत्त्वावधानमें स्वामी श्रीकरपात्रीजी महाराजने पावन व्रजभूमिको गोहत्याके कलंकसे मुक्त करानेके लिये आन्दोलन चलाया तो लालाजीका उन्हें सक्रिय सहयोग मिला। पूज्य ब्रह्मचारीजीके साथ लालाजीने लखनऊमें विधान-सभाके सामने सत्याग्रह कर उत्तरप्रदेशमें 'गोहत्या-बंदी'की माँग की। यह आन्दोलन तबतक जारी रहा, जबतक 'गोहत्या-बंदी'का कानून [भले ही वह आगे चलकर लचर सिद्ध हुआ] बन नहीं गया। इसी तरह सन् १९५५में बिहारमें 'गोहत्या-बंदी'की माँगको लेकर चलाये आन्दोलनमें लालाजी ब्रह्मचारीजीके साथ बाँकीपुर जेलमें रखे गये। बिहारके जेलसे ये दोनों तभी मुक्त हुए जब 'गोहत्या-बंदी कानून' बना दिया गया।

लालाजीने प्रतिज्ञा की थी कि 'जबतक पूरे देशमें गोहत्यापर पूर्ण प्रतिबन्ध नहीं लगेगा मैं न पगड़ी पहनूँगा न चारपाईपर सोऊँगा' इस प्रतिज्ञाका उन्होंने जीवनपर्यन्त पालन किया।

लालाजीने 'गाय ही क्यों' तथा गोसम्बन्धी दर्जनों पुस्तकें लिखी थीं। 'गाय ही क्यों' पुस्तककी भूमिका तत्कालीन राष्ट्रपति डॉ० श्रीराजेन्द्रप्रसादजीने लिखी थी। उन्होंने स्वीकार किया था कि 'गोवंशके बारेमें लालाजीका ज्ञान अगाध है।'

लालाजी धर्मसम्राट् स्वामी श्रीकरपात्रीजी महाराज तथा शंकराचार्य स्वामी श्रीकृष्णबोधाश्रमजी महाराजके प्रति अनन्य श्रद्धा रखते थे। उधर 'राष्ट्रिय स्वयं सेवक संघ' के सरसंघचालक श्रीमाधवराव सदाशिवराव गोलवलकर (श्रीगुरुजी) के प्रति भी उनकी श्रद्धा-भावना थी। श्रीगुरुजी भी लालाजीकी गोसेवासे बहुत प्रभावित थे।

लालाजी 'कल्याण'-सम्पादक पूज्य भाईजी (श्रीहनुमानप्रसादजी पोद्दार) के प्रति अनन्य श्रद्धा-भावना रखते थे। उन्होंने कई बार कहा था कि 'श्रीभाईजी तथा 'कल्याण' ने गोरक्षाकी भावना पैदा करनेमें अविस्मरणीय योगदान किया है।'

लालाजी जीवनभर गोरक्षा तथा गोसेवाका प्रचार करते रहे। उनके अथक प्रयासोंसे कई राज्योंमें 'गोहत्या-बंदी कानून' भी बने।

लाला लाजपतरायजीकी गोसेवा

(श्रीफतहचंदजी शर्मा 'आराधक')

पंजाब-केसरी लाला लाजपतराय आज हमारे बीचमें नहीं हैं, किंतु जिस दिन २८ जनवरीकी पुण्य तिथि आती है, तब हमारे सामने एक ऐसी विराट् आत्माका चित्र सामने आ जाता है, जिसने सोते हुए पंजाब तथा देशको अपने त्यागसे जगा दिया था। वे केवल यहीं नहीं बल्कि सुदूर अमेरिकामें भी बैठकर भारतीय चिन्तन करते रहे। अमेरिकाके प्रवासमें उन्होंने दुःखी भारतकी जो करुणा-पूर्ण कहानी लिखी थी वह भारतकी एक मूल्यवान् सम्पत्ति है।

लालाजी केवल साधारण व्यक्ति नहीं थे वरन् वे देशकी उन महान् शक्तियोंमेंसे एक हैं जिन्होंने देशको आगे बढ़ाने, दासतासे मुक्ति दिलाने और देशकी आवाज सारे देशमें गुँजानेके लिये शंखनाद किया था और उनका अन्त भी 'साइमन कमीशन लौट जाओ' के नारे लगाते हुए हुआ। इस प्रकार लालाजीका सारा जीवन देशपर मर-मिटनेकी चाह रखनेवाला इतिहास है। जब उनके सिरपर 'साइमन कमीशन' का विरोध करते समय पुलिसकी लाठी लगी,

तव उनके मुँहसे निकला था कि 'मेरे सिरपर पड़ी-पड़ी एक-एक लाठी ब्रिटिश साम्राज्यके कफनमें कीलका काम देगी।' लालाजीकी भविष्य-वाणी सत्य हुई। देश स्वतन्त्र हुआ, उनके बलिदानका फल देशके पुत्रोंने भोगा, किंतु लालाजी केवल देशको सूखी हड्डियोंका ढेर ही नहीं देखना चाहते थे, उनका यह दृष्टिकोण था कि बिना हृष्ट-पुष्ट हुए देशकी रक्षा नहीं हो सकती। इसीलिये उन्होंने भारतवासियोंको अपना जीवन शुद्ध दूध-घीपर बितानेके लिये जोर दिया था। वे बड़े चिन्तित थे कि हमारे देशमें अंग्रेजशाही जो भीषण गोवध करा रही है, उससे भय है कि देशकी भावी पीढ़ी किस प्रकार जीवन प्राप्त कर सकेगी। एक प्रकारसे लालाजीकी देशभक्ति आजके नेताओंको यह चेतावनी दे रही है कि डिब्बोंके अंदर बंद हुआ दूध पीनेसे देशके लोग जिंदा नहीं रह सकते, इसलिये इस देशमें सरकारको गाय-बैलोंके क़तल रोकने, उनके संरक्षण और संवर्धन करनेका काम करना चाहिये।

लालाजी केवल कहनेवाले ही नहीं थे, करके दिखलानेवाले भी थे। दिल्लीके शहीदी हालमें सन् १९२१ में एकता स्थापित करनेके लिये जो हिन्दू-मुसलमानोंका संयुक्त गोरक्षा-सम्मेलन हुआ था, उसमें लालाजीका सबसे बड़ा हाथ था। वे स्वयं उस सम्मेलनके अध्यक्ष थे और उन्होंने जोरदार शब्दोंमें इस बातको कहा था कि 'अंग्रेजी-राज्यमें गोवध होता है और गाय सबको घी-दूध देकर बलवान् बनाती है, इसलिये हम सब लोगोंको जो अपने देशको स्वतन्त्र करानेके लिये तैयार हैं और अंग्रेजोंको यहाँसे खदेड़ना चाहते हैं उन्हें अंग्रेजोंसे असहयोग करना चाहिये।' इस दृष्टिसे यह विचारणीय प्रश्न है कि लालाजी यदि आज जीवित होते तब वर्तमान सरकारके प्रति उनका क्या रुख होता? इसका निर्णय पाठकोंको स्वयं विचारना चाहिये।

गोभक्त देवसिंह हाड़ा

(श्रीकान्तिचन्द्रजी भारद्वाज)

राजस्थानमें हाड़ा राज्यके संस्थापक देवसिंह हाड़ाकी २२वीं पीढ़ीमें राजा रघुवीरसिंह हाड़ा गद्दीपर बैठे। इनका शासनकाल ईसवी सन् १८८९ से १९२७ रहा। राजा रघुवीरसिंह हाड़ा न्यायप्रिय कुशल प्रशासक थे। धर्म तथा सत्यमें निष्ठा रखनेवाले थे। राजा रघुवीरसिंह महान् गोभक्त थे। वे जंगलमें जाकर गायोंको चराते थे। स्वयं अपने हाथों गोसेवा करते थे। उनके राज्यमें प्रतिवर्ष एक दिन बड़े ही हर्ष-उल्लासके साथ गो-महोत्सव मनाया जाता था। यह उत्सव वनमें होता था तथा सभी गायोंको वनमें ले जाकर चराया जाता था और गायोंकी पूजा होती थी। राजाज्ञा थी कि 'उस दिन कोई भी नगरमें धुआँ नहीं करेगा तथा घरमें भोजन भी नहीं करेगा। सभीको गोचारण-महोत्सवमें उपस्थित होना अनिवार्य है।'

राजाज्ञाके अनुसार सभी नागरिक जंगलमें जाकर अपने-अपने समूहमें भोजन बनाते थे। गरीबोंके लिये और राजपरिवारके सदस्योंके लिये भोजन-व्यवस्था राजाकी ओरसे होती थी। राजाजी जंगलमें लाठी लेकर गायोंको चराते थे, दोपहरमें महारानी अपने सिरपर जुवारकी रोटी, छाछ, सब्जी, गुड़ आदि लेकर राजाके पास पहुँचती, राजा-रानी इन्द्र देवताकी पूजा करते तथा साथ बैठकर छाछ-रोटी खाते। ऐसा विश्वास था कि इस गोचारण तथा वन-महोत्सव एवं इन्द्रपूजनसे अनावृष्टि दूर होकर निश्चित रूपसे भारी वर्षा होती है। इस उत्सवमें रुद्राभिषेक करवाया जाता तथा ब्राह्मण-भोजन और गायोंको घास खिलाया जाता था और उनकी पूजा होती थी।

हाड़ा राज्यका यह वन-महोत्सव व्रजमें नन्दराय आदि गोपोंद्वारा वृष्टिके लिये की गयी इन्द्रपूजा तथा पुनः भगवान् श्रीकृष्णद्वारा किये गये गोवर्धन-पूजन, गोपूजन तथा गोमहोत्सवका ही प्रतिरूप जान पड़ता है।

* * *

सत्यमेव जयते

ANNEXES

CHAPTER V - (I)

BY - PRODUCTS, DUNG, URINE ENERGY ETC.

सत्यमेव जयते

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Paragraph 6

REPORT OF THE TASK FORCE ON ORGANIC FARMING
MAJOR RECOMMENDATIONS

(Extract from page 68 para 7.1- Conclusion)

The salient observations of the Committee on the status of organic farming and related aspects are as follows:

I. The organic farming stabilises the soil productivity and sustainability of crop production. Its benefits may have to be seen in conservation of natural resources and not merely as a means for export.

II. There are no data at the National level about the areas and production of agricultural commodities organically except for spices, coffee and tea.

III. There is no precise information about export value of various organic products singly an in totality.

IV. There is no National level body/organisation made exclusively responsible for developing organic farming in the country.

V. There was no system of prescribing standards about organic agriculture in the country till the recent work done by the Ministry of Commerce, who have developed a National Programme for Organic Production and prescribed standards and guidelines for organic farming which have been notified in May, 2000. The exercise is aimed primarily to facilitate export of commodities produced and processed organically.

VI. There were no recognised Accreditation Agencies (A) to appoint certification agencies till the Ministry of Commerce recognised four agencies namely APEDA, Tea Board, Coffee Board and Spices Board as AA through a notification in June, 2001. These AAs are authorised to appoint certification agencies.

VII. The research work is being done in limited manner in the areas of 'organic farming' as such. However, good amount of work has been done to assess the benefits of the nutrients applied through organic sources in combination with chemical form. A definite cost : benefit relationship exercise has not been carried out in the absence of data on the use of organics exclusively.

VIII. The extension/promotion of organic agriculture is lacking since the Government efforts in the last over three decades have been to popularize the use of chemical forms of nutrients and plant protection measures to meet the need of high-yielding variety of crops and for obtaining quick results in increasing food production. Government has been promoting integrated nutrients and implemented plant protection measures as the production strategy.

IX. Government has succeeded in its efforts to increase food production to the required level in the country but in the process, the use of chemicals have reached such high proportion in some States and particularly in some districts in States and areas which could be called as the potential threat to the environment and to the soil/water quality, and health of living beings if not protected in future.

X. No markets have been developed for organic products both locally and for export. No well organised extension for promotion of organic agricutlure has been done. There are no processing industries, hence no export, for organic produce.

XI. Practice of keeping draft and milch cattle seems to be vanishing in the country. Tractors are taking place of draft animals, while cattle dung as a source of manure has been replaced by chemical fertilisers.

XII. The use of cow urine preparation and neem extracts etc. and some other local practices which used to be adopted as plant protection measures have been replaced by extensive use of pesticides weedicides. However, some farmers are still using the traditional practice of plant protection measures with a good success.

XIII. There is no emphasis in the curriculum at the graduation/post graduation stage about the benefits of organic farming.

XIV. The practice of re-cycling of crop residues and farm manure has been discontinued by farmers.

XV. Preparation and use of vermicompost at the farmers' level is being practiced insome areas. It seems the age old benefit of earth worm in improving soil fertility is being restarted by the farmers owing to the realsation that the earth worm population in soil is decreasing due to excessive use of chemicals. Vermicompost as being practiced by some farmers and as is being popularised by some States, NGOs and other is encouraging. Vercomposting can be termed as a farmer friendly practice.

XVI. The ICAR is having a scheme, which includes preparation and standardisation of nutrient enriched and biologically fortified compost which could be called as phospho-compost.

XVII. The micronutrient deficiencies are observed in high fertiliser consumption areas because chemical fertilizers are devoid of micronutrients and the use of organic manures, compost, green manuring etc. is not adequate.

XVIII. It was observed that in the organic farming system the initial yield levels may be low for about 2-3 years. Systematic adoption and practicing organic farming may ensure that the crop yields at the same level can be obtained at the expected levels after 2-3 years. The benefits of organic farming in maintenance of soil fertility and sustainable crop production are otherwise well accépted by the farmers.

XIX. There are vast areas in the country which are still using very small amounts of chemical nutrients and chemical form of plant protection measures and are, therefore, considered as potential areas for promoting organic farming. These areas are also incidentally rainfed areas and particularly the States in the North Eastern Regions, which suffer due to inadequate infrastructure facilities like communication, marketing etc. which need to be promoted.

XX. The government is making efforts to convert urban bio-degradable wastes into compost and for is use in agriculture. This source has a huge potential in terms of quantity of bio-degradable wastes being generated daily from cities. However, chances of mixing harmful wastes into compost cannot be ruled out and, therefore, this aspect has to bekept in view and limits about impurities are to be adopted strictly.

XXI. Handling and processing or urban bio-degradable wastes as compost / manure needs a coordination among various Central Govt. Departments and the State level agencies. This aspect also has significant environmental consideration and, therefore, needs to be tackled in a coordinated manner to ensure that the cities are kept clean and the waste is used either as manure or as energy source after standardisation of appropriate technologies which many have to be cost effective so as to ensure that the farmers get compost at a reasonable price.

XXII. The Government propagates integrated nutrient management system through extension and other means. This is aimed to ensure that the crops get required amount of nutrients for ensuring high production. While the need fro such a programme can be appreciated, a focussed programme with a separate identity for promotion of organic farming whic involves the use of only organic form of plant nutrients, non-chemical form of plant protection measures and non-chemical form of processing of the produce has to be propagated.

XXIII. The committee noted that the Government gives substantial subsidy on chemical fertilizers. However, there are no significant schemes / programmes to give financial support to the farmers using organic sources of nutrients.

XXIV. Government of Madhya Pradesh has decided through a Gazette notification that, in half of the areas in all Government farms, the experimentation / demonstrations will be done only on organic farming or integrated farming and the remaining areas may be used for chemical farming or integrated farming et. Government of Madhya Pradesh has also identified one village in each Block to be developed as organic farming village.

XXV. Consumer awareness is not there about the benefits of organically produced food in spite of the fact that this is the holistic food.

XXVI. Government farms / research institutes are not having exclusive experimentation on organic farming except a few.

XXVII. Certification agencies relating to organic farming / organic produce are not adequate in number. The few private agencies which have developed the facilities for organic certification charge very heavy fee.

XXVIII. Plant breeding / seed multiplication programmes are based on chemical nutrient use / chemical plant protection measures.

XXIX. It was observed at Gloria Farm at Pondicherry that one cow and one duck being maintained for each acre of farm area has supplied enough nutrients require to the crops for the last 30 years. However, at other places it was observed that one cow can meet the requirement of crop nutrients up to 5 acres, particularly when the system of crop residues recycling is adopted. In most parts of the country, the practice of re-cycling of crop residues has vanished.

XXX. The Sugarcane Press Mud (Control) Order, 1959 stipulates that sugarcane press mud may be used only as an manure but in many places it is being used as a fuel by brick kiln owners.

XXXI. A number of farmers, NGOs and some institutions are practising organic agriculture, using traditional sources and methods of nutrient supplies to the crops and non-chemcial forms of plant protection measures with varying degrees of success. However, the technology adopted and methods followed are not well-documented, which is observed from the responses received from various quarters to the advertisement given by the Government inviting suggestions about organic farming in the country.

XXXII. Biological Control

(a) Use of biological control agents – parasites, predators and insect pathogens for the control of insect pests and diseases may form an important component of organic farming. A net work of 409 biological control labs is available in the country.

(b) Use of bio-pesticides (neem bsed products, cow urine based products, bacillus thuringiensis, Thrichoderma, nuclear poly hedrosis virus, entomagenous fungui) should be encouraged in organic farming.

(c) Promote various cultural & mechanical practices to check on pests under organic farming.

(Extract from page 73-74, para 7.2)

Recommendations

I. Economic value of chemical fertilizers and organic manure may be equated in terms of their overall effect on soil productivity, crop production and then Government may provide the support accordingly.

II. The technology packages on organic farming as developed by farmers, NGOs and others may be evaluated and the successful technology may be expanded in larger areas.

III. Bullock drawn implements should be encouraged

IV. Such programmes may be formulated and implemented which support the maintenance of at least one cow by each of small and marginal farmers.

V. Bankable model schemes on organic farming may be prepared and circulated among the States for its adoption and popularization.

VI. A course at the Post-Graduation level may be started on organic farming by each of the agricultural universities in the country.

VII. Bio-gas plants need to be popularised to have the dual benefits of gas for lighting and manure for crops.

VIII. Programmes need to be continued / initiated for evaluation and promotion of organic sources of nutrients through biofertilisers, vermi-compost, press mud, coir pith manures, urban compost, bio-gas slurry and non-edible oil cakes etc.

IX. Each KVK may set up a vermi compost unit and a biological control unit for demonstration and dissemination of the techniques. These centres may also provide worms to the farmers after their training.

X. Each KVK may lay out one demonstration on organic farming by taking major crops of that area as test crops.

XI. Farmers training about cost-benefit relationship in organic farming and about export of organic produce may be organised through some designated institutions specialised in this area. Such institutions which may include NGOs may be supported by the Government.

XII. The organic markets for supply and purchase of inputs and outputs for organic farming may be developed.

XIII. Adequate numbers of certification agencies may be identified and registered / recognised. The certification agencies may be financed by the Government to carry out free certification for farmers for intended export of organic produce.

XIV. In the areas of high production, the shifting to organic farming system may result into loss of produce in the initial years. For such switch over, farmers may need to be compensated for initial 2-3 years.

XV. To make urban compost plants a successful venture with a view to promote the use of urban compost, a critical cost analysis of such plants may be made and the financial assistance on a realistic basis may be given ,so as to make this venture economically viable. The required financial support may be shared by the concerned municipalities, Urban Development Ministry, Ministry of Environment & Forests, Ministry of Agriculture and the entrepreneurs on equal basis.

XVI. All the Central Government farms may set up vermi compost units and develop and demonstrate the system of re-cycling of crop residues. This may be demonstrated by reduced consumption of chemical fertilizers on the Government farms. The numbers and capacity of vermi compost units may be according to the size of the farms.

XVII. All the State Government may be advised to consider to device the system as introduced by Government of Madhya Pradesh about the experimentation and demonstrations on Government farms on 50: 50 area basis on rganic farming and other forms of farming.

XVIII. the bio dynamic means of preparing nutrients may be standardised and the technology may be popularised.

XIX. The crop residues should not be permitted to be burnt. Suitable legislation may be thought of, if required.

XX. Adequate information may be made available to the farmers about the cropwise residues arising and equivalent nutrient value per unit area through such crop residues.

XXI. The venture of vermi compost, compost, press mud and other form of generation of organic nutrient for crop production may be exempted from levy of all kinds of taxes, excise and income tax etc.

XXII. Homa farming and bio dynamic agriculture may form an important component of organic farming and the technology may be standardised and popularised.

XXIII. The agriculture being a State subject, the State Governments may be effectively involved in the National programme to be prepared for promotion of organic farming.

XXIV. Each State may set up a State level cell or create a suitable unit at the Headquarter of Directorate of Agricutlure to oversee the promotion of organic farming in the State.

The concept of organic farming as a sustainable and better alternative should be propagated by the leaders of the Government in order to create a favourable environment in its support in the country.

A National level permanent Board may be set up to oversee the promotion of organic farming in the country and to coordinate this activity with all concerned Union Ministries, national level bodies, State Governments, research institutions, universities and others.

ANNEX V - I (2) (i)

PAPERS ON BENEFITS OF ORGANIC FRAMING

DHARAMMITRA, WARDHA

"EXTENSION OF SIMPLE & LOW COST AGRICULTURAL TECHNIQUES FOR IMPROVING CROP PRODUCTIVITY OF SMALL & MARGINAL FARMERS IN VIDARBHA REGION THROUGH GRASS ROOT LEVEL NGO^s".

• A BRIEF REPORT OF THE PROGRAMME •

(1998 to 2001)

1. Area under study :

This programme has been implemented in collaboration with 7 grass root level NGOs which are working in the tribal areas of Western Vidarbha and developed good rapport with the local people. The beneficiaries for this programme have been selected by these NGOs from the villages in their areas of operation. The programme has been initiated in 1998-99.

2. Selection of farmers :

A package of non-chemical agricultural techniques was introduced to about 198 farmers in the first year and further extended to a total of 398 farmers located in 21 villages in 4 districts in this region, namely Wardha, Yaotmal, Amravati and Washim. A majority of these farmers are small or marginal and belongs to tribal community. Most of them hold poorly soiled and sloppy lands which are cultivated under rainfed condition. The crop productivity levels of these lands are, therefore, very poor.

सत्यमेव जयते

3. Nature of Programme :

After initial efforts of awareness creation, these farmers were suggested to year mark 1 acre of their land to be brought under non-chemical practices while they were to continue to cultivate their rest of the land holding with the usual chemical practices. In this way, about 386 acres of land was brought under non-chemical system in the first year which was later extended to 1097 acres in the third year while in the same year about 1183 acres of land was under chemical system.

4. Nature of non-chemical package :

These farmers were introduced to a non-chemical package mostly based on the use of local resources. It is comprised of following techniques :

i) Soil conservation through a simple technique of contour bunding.
ii) Cultivation of crops parallel to contours.
iii) Use of indigenous or improved seeds of straight line varieties.
iv) Preparation and use of organic manure.
v) Pretreatment of seeds using cow dung, animal urine and soil.
vi) Pre-treatment of seeds using bio-fertilizers.
vii) Use of mixed cropping patterns instead of mono-cropping
viii) Use of animal urine as a plant growth promoter.

ix) Use of bio-pesticides like animal urine, neem extract, garlic paste and / or other herbal extracts for pest control.

5. Data collection :

Every year, data on types of crops cultivated, crop yields obtained and cost-benefits worked for cultivation were compiled for the crops grown by each of these farmers under non-chemical system and was compared on per acre basis with that of the crops grown under chemical system by the same farmers on rest of their land.

6. Impact of the programme :

The area of land being brought under non-chemical system / farmer was also found to have increased in the successive years. In the three years i.e. from 1998-1999 to 2000-2001, the land under non-chemical system has increased from 386 acres to 1097 acres. This shows that although the farmers were initially asked to year mark only one acre of land/farmer for this experiment, actually the average land brought under non-chemical system / farmer has shown an increase from 1.95 acre to 2.91 acre in a span of three year.

7. Difference in net income :

The difference in net income in non-chemical system compared to that of the chemical system has also shown an increase in the successive years which was noted to be higher by Rs 266.54, Rs, 305.25 and Rs. 367.73 in the years 1998-99, 1999-2000 and 2000-2001, respectively when compared on per acre basis. These calculations were based on an average of the net incomes of all the farmers of all the villages compared under chemical as well as non-chemical systems. The number of villages showing higher profits in non-chemical system over chemical system has also shown an increasing gain in the successive years. For example, during 1998-1999, out of 14 villages, higher net income was noted in 8 villages under non-chemical system and in 2 villages under chemical system, while in 4 villages the net income was almost as par. During 2000-2001, out of the 21 villages studied, higher net income was noted under non-chemical system in 17 villages (324 farmers and 853.82 acres) and under chemical system in 2 villages (39 farmers and 125 acres), while it was found to be as par in both the systems in 2 villages (35 farmers ; 110.25 acres of non-chemical system and 172.25 acres of chemical system.

8. Difference in crop yields :

When the crop yields under two systems are compared, it is clearly seen that non-chemical system favours the leguminous crops like pigeon pea, green gram and soya-bean as the yields of these crops have been noted tobe consistently higher in all the three years in non-chemical system compared to chemical system. The yields of cotton and dry land paddy crops, although noted to be higher in chemical system in the earlier years, have also shown incremental trend in non-chemical system in the successive years almost becoming as par or marginally low. The yields of sorghum and green gram have been found to be substantially higher under mix cropping pattern compared to their yields under mono-cropping pattern.

9. Gross income under different crops :

Even the gross income under non-chemical system for mixed cropping of cotton and pigeon pea has shown incremental growth in the successive years and was found to be only marginally low in the last year. Similar trend was also noted in case of dry land paddy.

DHARAMITRA, WARDHA

Project - "Extension of simple & low cost agricultural techniques for improving crop productivity of small & marginal farmers in Vidarbha region through grass root level NGO^{S}".

Table I - Brief information about villages, farmers and land under experiment of sustainable agriculture during 2000-2001.

Sr. No.	Names of Institution	Names of Institution heads	Names of villages	No. of farmers			Total Land holding (Acres)			Acerage under Non-chemical experiment		
				1998-99	*1999-2000*	2000-2001	*1998-99*	*1999-2000*	2000-2001	*1998-99*	*1999-2000*	*2000-2001*
1.	Ahilyadevi Holkar Gram Sudhar Sanstha, Gopuri Wardha	Mr. Vinod Ambhore	Umari	14	19	16	83.50	109.00	92.00	135.00	22.75	20.75
			Kakrdara	11	17	15	105.50	132.00	153.00	18.00	31.00	30.75
			Panjara	4	8	7	22.00	52.00	40.50	4.00	8.00	16.00
			Saheli	-	9	9	-	61.00	57.50	-	7.50	13.00
				29	53	47	211.00	354.00	343.00	35.50	69.25	80.50
2.	Gramin Samasya Mukti Trust, Jalka, Tal.-Maregaon, Dist- Yavatmal	Dr. Kishor Moghe	Awalgaon	11	15	22	95.00	149.00	187.50	20.50	70.00	85.00
			Kanhalgaon	10	17	20	52.00	116.00	161.00	20.00	40.50	80.50
			Wagdara	8	17	17	70.00	122.00	123.50	12.50	61.50	76.00
				29	49	59	217.00	387.00	472.00	53.00	180.00	241.50
3.	Gramajyot Sanstha Ralegaon, Dist. - Yavatmal	Mr. Manohar Gade	Undarani	16	26	26	97.00	205.00	210.50	35.00	78.00	54.50
			Koli (B)	10	10	17	27.00	76.00	121.00	27.00	37.00	46.50
			Shari	-	15	32	-	113.00	218.00	-	55.50	63.50
			Dattanagar	12	16	16	87.00	127.00	125.50	27.50	86.00	35.50
				38	67	91	211.00	521.00	675.00	89.50	256.50	200.00
4.	Dilasa Sanstha, Ghatanji, Dist. - Yavatmal	Mr. Madhukar Dhas	Wasari (Pod)	10	20	19	70.00	138.60	114.50	18.00	135.60	34.00
			Mandwa	10	20	13	63.00	173.00	184.00	29.00	59.20	34.50
			Kinhi	10	16	16	61.00	131.30	82.50	20.00	30.20	25.00
			Rajegaon	-	14	23	-	117.20	158.00	-	68.20	66.00
				30	70	71	194.00	560.10	539.00	67.00	293.20	159.50
5.	Antyodaya Vichar Kendra, Nandgaon, (Kh)	Mr. Pramod Tarhekar	Shinganapur	13	26	30	44.00	122.50	151.00	27.00	85.00	83.50
			Shiwani (R)	8	25	24	33.00	96.00	136.00	8.00	85.50	63.00
				21	51	54	77.00	218.50	287.00	35.00	170.50	146.50
6.	Sarita Sanstha Raosa, Dist. Amaraoti	Mr. Baba Gunorkar	Bhulori	8	18	28	64.50	80.12	207.57	10.00	53.57	150.70
			Bhawai	12	-	-	62.00	-	-	19.00	-	-
			Ghatanji	-	7	-	-	39.00	-	-	9.00	-
				20	25	28	126.50	119.12	207.57	29.00	62.57	150.70
7.	Vikalp Sanstha Ladegaon Dist. - Washim	Mr. Pawankumar Mishra	Belkhed	6	19	17	82.50	183.00	95.00	15.00	90.00	39.00
			Ladegaon	9	14	16	147.00	181.00	88.00	27.00	38.00	44.50
			Aurangpur	16	-	15	157.00	-	98.00	35.00	-	35.00
				31	33	48	386.50	364.00	281.00	77.00	128.00	118.50
	Grand Total			**198**	**348**	**398**	**1423.00**	**2523.72**	**2804.57**	**386.00**	**1160.02**	**1097.20**

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Project - "Extension of simple & low cost agricultural techniques for improving crop productivity of small & marginal farmers in Vidarbha region through grass root level NGO^{S}".

Table 3 - Comparative cost of production & income under non-chemical & chemical systems during 2000-2001.

Sr. No.	Names of Institution	Name of villages	No. of farmers	Total land Holding (Acre)	Area under organic farming (Acre)	Area under Chemical farming (Acre)	Area under Low Input (Acre)	Organic farming (on per acre basis)			Chemical farming (on per acre basis)			Low input (on per acre basis)		
								Gross Income	Total exp.	Net Income	Gross Income	Total exp.	Net Income	Gross Income	Total exp.	Net Income
1.	Ahilyadevi Holkar Gram Sudhar Sanstha, Gopuri, Wardha	Umari	16	92	20.75	53.25	-	2014.46	460.72	1553.74	1911.74	928.64	983.10	-	-	-
		Kakrdara	15	153	30.75	64.25	30.00	2092.03	140.83	1681.20	3003.11	1299.65	1703.46	1771.67	717.83	1053.84
		Panjara	7	40.50	16.00	19.50	-	1777.50	428.75	1348.75	1866.67	699.74	1166.93	-	-	-
		Saheli	9	57.50	13.00	44.50	-	4225.77	657.31	3568.46	3494.38	1418.20	2076.18		-	-
			47	343.00	80.50	181.50	30.00	2527.44	489.40	2038.04	2508.97	1086.56	1482.41	1771.67	717.83	1053.84
2	Gramin Samasya Mukti Trust, Jalka, Tal.-Maregaon, Dist- Yavatmal	Awalgaon	22	187.50	85.00	81.50	18.00	3018.35	717.29	2301.06	3655.21	1010.30	2644.91	2136.11	719.44	1416.67
		Kanhalgaon	20	161.00	80.50	70.00	8.00	3296.15	624.09	2672.06	4609.29	1967.00	2642.25	2750.00	920.00	1830.00
		Wagdara	17	123.50	76.00	37.50	-	2202.70	725.00	1477.70	2364.53	988.80.	1375.73	-	-	-
			59	472.00	241.50	189.00	26.00	283.06	688.70	2150.27	3543.01	1322.03	2220.97	2443.05	819.72	1623.33
3.	Gramajyot Sanstha Ralegaon, Dist. - Yavatmal	Undarani	26	210.50	54.50	116.00	32.00	2514.13	714.27	1799.36	1379.32	969.83	407.50	2315.62	929.06	1386.56
		Koli (B)	17	121.00	46.50	30.50	13.00	2080.95	482.82	1598.93	4002.64	1486.66	2515.98	2000.00	911.54	1088.46
		Shari	32	218.00	63.50	43.50	30.00	1867.72	608.72	1259.00	2209.91	1054.51	1155.40	1186.67	696.33	490.33
		Dattanagar	16	125.50	35.50	118.50	30.00	1915.49	575.69	1339.80	1954.92	1049.18	905.74	1533.33	541.67	991.66
			91	675.00	200.00	308.50	105.00	2094.57	595.50	1499.07	2386.20	1140.05	1246.15	1758.90	769.65	989.25
4.	Dilasa Sanstha, Ghatanji, Dist. - Yavatmal	Wasari (Pod)	19	114.50	34.00	29.00	40.50	2705.74	858.82	1846.92	2335.34	1841.72	493.62	1198.76	682.47	516.79
		Mandwa	13	184.00	34.50	73.50	68.00	3234.06	667.97	2566.09	3508.16	1036.05	2472.11	2137.13	813.97	1323.16
		Kinhi	16	82.50	25.00	50.50	-	4220.00	949.00	3271.00	3558.42	1682.57	1875.85	-	-	-
		Rajegaon	23	158.00	66.00	70.00	13.00	2001.29	648.26	1353.03	2427.07	1544.28	882.79	1887.69	1073.08	814.61
			71	539.00	159.50	223.00	121.50	3040.27	781.01	2259.26	2957.25	1526.16	1431.09	1741.19	856.50	884.69
5.	Antyodaya Vichar Kendra, Nandgaon, (Kh)	Shinganapur	30	151.00	83.50	39.50	18.00	2060.22	1079.22	981.00	2120.68	1327.54	793.14	1820.83	772.22	1048.61
		Shiwani (R)	24	136.00	63.00	66.00	7.00	2679.68	1041.03	1638.65	3234.47	1879.18	1355.29	2542.86	1585.71	957.14
			54	287.00	146.50	105.50	25.00	2369.95	1060.13	1309.82	2677.57	1603.36	1074.21	2181.84	1178.97	1002.87
6.	Sarita Sanstha Raosa, Dist. Amaraoti	Bhulori	28	207.57	150.07	13.00	-	1448.14	589.05	859.09	1798.88	993.46	805.42	-	-	-
			28	207.57	150.07	13.00	-	1448.14	589.05	859.09	1798.88	993.46	805.42	-	-	-
7.	Vikalp Sanstha Ladegaon Dist. - Washim	Belkhed	17	95.00	39.00	56.00	-	2726.28	896.79	1829.49	2355.62	1121.25	1264.37	-	-	-
		Ladegaon	16	88.00	44.50	43.50	-	2841.57	806.52	2335.05	2575.29	1051.95	1523.34			
		Aurangpur	15	98.00	35.00	63.00	-	3393.43	853.14	2540.29	2743.25	1117.98	1625.47	-		
				281.00	118.50	162.50	-	2987.09	852..15	2134.94	2568.05	1096.99	1471.06	-	-	-

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Table III :- Comparative statement of expenditure, gross income & net income under, non-chemical & chemical system

		Non Chemical System			Chemical System		
Sr. No.	Name of villages	Total Exp.	Gross Income	Net Income	Total Exp.	Gross Income	Net Income
1.	Awalgaon	576.97	2217.44	1640.47	809.86	1785.64	975.78
2.	Kanhalgaon	628.27	2617.91	1989.64	889.95	1902.83	1013.68
3.	Wagdara	728.00	1612.24	884.24	614.44	1307.26	692.82
4.	Kakardara	499.49	1725.17	1225.68	1275.33	2544	1268.67
5.	Umari	501.48	1722.59	1221.11	1075.87	2513.61	1437.74
6.	Panjara	603.75	2175	1571.25	772.86	1783:33	964.48
7.	Shinganapur	835.15	1423.59	588.44	894.71	1682.35	787.64
8.	Siwani R	1361.25	1784.37	423.12	713.92	1266.27	552.35
9.	Undarani	928.28	2125.51	1197.23	1311.77	260.66	1288.89
10.	Dattanagar	840.00	2129.60	1289.60	1119.83	2300.64	1181.01
11.	Koli (B)	835.74	1822.22	986.48	1234.60	1937.50	702.90
12.	Kinhi	895.41	1826.47	931.06	1446.20	2061.60	615.40
13.	Mandwa	692.93	1896.90	1203.97	892.09	1432.65	540.56
14.	Warari (Pod)	1108.90	1428.43	319.53	1757.11	1475.56	281.55
	Average	788.26	1893.38	1105.13	1057.69	1896.36	838.60
Increase in net Income per acre in Non-chemical system over chemical system						Rs. 266.538 (31.78 %)	

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Project - "Extension of simple & low cost agricultural techniques for improving crop productivity of small & marginal farmers in Vidarbha region through grass root level NGO^{S}".

Table 5 - Comparative yield & gross income per acre of various crops under chemical & non-chemical systems during 2000-2001.

Sr. No.	Names of crops	Price / Qt. (Rs.)	Chemical System		Non-chemical System		Difference in non-chemical system over chemical system		
			Yield (Qt.)	Gross income (Rs.)	Yield (Qt.)	Gross income (Rs.)	Yield Gross (Qt.)	income Gross (Rs.)	%
1.	Cotton ⊙ + Tur	2000 1500	1.40 0.59	2800 885	1.35 0.68	2700 1020	-0.05 +0.09	-100 +135	3.70 15.25
2.	Jowar (hybrid)	400	4.06	1624 3364 ••	-	-	-	-	-
3.	Mug	1200	1.45	1740 1632•••	-	-			
4.	Jowar (hybrid) ⊙ + Mug	400 1200	- -	- -	3.20 1.64	1280 1968 3248•••	-0.86 1.19	+ 1582	- 26.88 82.07
5.	Paddy	400	3.78	1512	3.88	1552	+0.10	+ 40	2.65
6.	Soyabean	900	2.95	2655	4.20	3780	+1.25	+ 1125	42.37

⊙ Mixed cropping

⊙⊙ Cumulative for two acres

⊙⊙⊙ Computed for one acre

Table V :- Comparative Yield & Gross Income Per acre of Various crops Under Chemical & Non-Chemical Systems
(1998 - 99)

S.No	Names of Crops	Price Rs	Chemical System		Non-chemical System		Difference in Non-chemical System OverChemical System			
			Yield (qt)	Gross Income (Rs.)	Yield (qt)	Gross Income (Rs.)	Yield		Income	
							Gross (qt)	%	Gross (Rs.)	%
01	Colton + Tur	2000 1500	0.83 0.41	1660 615	0,68 0.52	1360 780	- 0 15 + 0.11	18.70 + 26.82	- 360 + 165	- 21.69 + 26.83
02	Jawar (hybrid)	400	3.65	1460	-	-	- 1.31	- 36.92	+ 512	+ 28.22
03	Jawar (Samrudhi)	800	-	-	2.34	1872				
04	Mug	1200	0.68	816	-	-	-	-	-	-
05	Jawar (Samrudhi) +	800	-	-	1.99	1592	-	-	+ 1143	+ 78.08
	Mug	1200	-	-	0.84	1008	-	-		
06	Paddy	400	1.54	616	1.0	400	- 0.54	- 35.06	- 216	- 35.06
07	Soyabean	1000	3.25	3250	5.41	5410	+ 2.16	+ 66.40	+ 2166	+ 66.46

ANNEX V - I (2) (ii)

राष्ट्रीय वनस्पति अनुसंधान संस्थान
(वैज्ञानिक एवं औद्योगिक अनुसंधान परिषद्)
राणा प्रताप मार्ग, पोस्ट बाक्स सं0 436 लखनऊ – 226001
NATIONAL BOTANICAL RESEARCH INSTITUTE
(Council of Scientific & Industrial Research)
Rana Pratap Marg, P. B. No. 436, Lucknow - 226001 (India)

C. Shekhar Nautiyal, FNASc.

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NBRI/MICRO/11-802
November 13, 2001

Dr. Sunil Mansinghka
Director
Go-Vigyan Research Centre
"Kamdhenu Bhawan"
Pt. Bachraj Vyas Chaowk
Chitar Oli, Mahal
NAGPUR 440 002

BY SPEED POST

Dear Sunil :

Please find herewith enclosed the relevant information desired by you for product "Kamdhenu-Biopesticide" and "vermicompost". I apologise for the unusual delay due to heavy workload and shortage of staff available at my end. I do hope that the information may be of some use to you.

With warmest personal regards, I remain,

Sincerely yours,

Chandra Shekhar Nautiyal

Table 1. Plant growth promotery effect of vermicompost on maize plant in soil[a]

S. No.	Treatment	Shoot length (cm)	Root length (cm)	Biomass[b] (gm)	Biomass increase (%)
1.	Control (No vermicompost)	31.6	8.3	0.17	0.0%
2.	5% vermicompost[c]	35	11	0.21	123%
3.	50% vermicompost	45	11.5	0.32	188%

[a] Maize plants were grown in styrofoam trays under greenhouse conditions for [illegible] weeks, using garden soil. Data indicate an average value of four plants.

[b] Plants were harvested after 10 weeks of growth and dried at 60°C for three days before taking the dry weight.

[c] Vermicompost was diluted in tap water to the desired dilution and applied to the soil at the time of the germination of seeds in soil to provide 20% final moisture, which was maintained throughout the growth of plant.

Conclusion : Significant increases in the shoot length, root length, and plant biomass were obtained, which is an indication of an excellent plant growth promotery effect of vermicompost treatment on the growth of maize. It is recommended that 5 to 10% diluted slurry of the vermicompost solution should be used for the treatment. As it gives plant growth promotery affects similar to that of undiluted vermicompost, i.e., more economical for our poor farmers.

Table 2. Effect of biopesticide on the growth of maize plant in soil[a]

S. No.	Treatment	Shoot length (cm)	Root length (cm)	Biomass[b] (gm)	Biomass increase (%)
1.	Control (No biopesticide)	31.6	8.3	0.17	0.0%
2.	1% biopesticide[c]	28.3	5.6	0.70	411%
3.	10% biopesticide	35.6	9.6	0.66	388%

[a] Maize plants were grown in styrofoam trays under greenhouse conditions for 10 weeks, using garden soil. Data indicate an average value of four plants.

[b] Plants were harvested after 10 weeks of growth and dried at 60°C for three days before taking the dry weight.

[c] Biopesticide was diluted in tap water to the desired dilution and applied to the soil at the time of the germination of seeds in soil to provide 20% final moisture, which was maintained throughout the growth of plant.

Conclusion : Significant increases in the shoot length, root length, and plant biomass were obtained, which is an indication of an excellent plant growth promotery effect of biopesticide treatment on the growth of maize. It is recommended that 1 to 10% diluted biopesticide solution should be used for the treatment. As it gives plant growth promotery affects similar to that of undiluted biopesticide, i.e., more economical for our poor farmers.

Table 3. Screening of biopesticide under in vitro conditions for ability to suppress pathogenic fungi and bacteria

Pathogenic strain	Zone of inhibition (mm)	
	Direct	10 times diluted
Plant pathogenic fungi		
Collatotrichum falcatum	15	5
Sclerotium rolfsii	7	0
Alternaria solani	24	0
Penicillium sp.	20	10
Pythium aphanidermatum	5	0
Phytopthora palmivora	5	0
Phoma sorghii	2	0
Sclerotinia sclerotiorum	20	7
Fusarium oxysporum	20	0
Fusarium monoliforme	5	0
Human pathogenic fungi		
Aspergillus flavus	0	0
Candida albicans	0	0
Trichoderma sp.	3	0
Trichophyton rubrum	0	0
Human pathogenic bacteria		
Escherichia coli	0	0
Klebsiella pneumonae	0	0
Shigella	3	0
Staphyllococcus aureus	0	0
Vibrio cholerae	5	0

Conclusion : Biopesticide was quite effective against four plant pathogenic fungi *Alternaria solani*, *Penicillium* sp., *Sclerotinia sclerotiorum*, and *Fusarium oxysporum* indicating its potential use for controlling plant diseases.

Table Test report of sample provided by Sunil Manshinka

Components	Quantity
Organic Carbon % (mg/100 g)	13.4
Nitrogen (%)	0.60
Phosphorous (as P) % by mass	1.30
Sodium (as Na) % by mass	0.13
Potassium (as K) % by mass	0.60
Copper (as Cu) % by mass	0.001
Iron (as Fe) % by mass	0.17
Zinc (as Zn) % by mass	0.008
Manganese (Mn) % by mass	0.029
Calcium (as Ca) % by mass	0.29
Magnesium (as Mg) % by mass	0.28
pH of solution (5 %)	7.50
Ec	6.53

Protocol

1. Is: 6092-1985
2. Is: 5402-1969
3. AAS

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ANNEX V - I (2) (iii)

Summary of the results of two years field trial experiments in relation to productivity, cost and effect on soil.:

In the two years field trial experiments when the treatments of first year were repeated in the second year on the same plot to confirm the results of first year, following observations were noted :

1. The yield of both grain and straw was increased in the second year as compared to that of first year in almost all treatments (Graph 5 & 6).
2. In second year straw yield was more and grain to straw ratio was less as compared to that of first year.
3. The average total yield of both the years in relation to various treatments showed same trend (Table 17).
4. It was observed that -

a) Only biodung treated plots showed better yield than only FYM treated plots, however it was less than only chemical fertilizer treated plot.

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b) In the fortified treatments 50% fortification with FYM and biodung showed optimum yield as compared to 100% and 75% fortifications. However biodung with 50% NPK showed more yield than FYM with 50% NPK treatment

c) The yield of 5 ton Biodung + 100% NPK treated plot was comparable to the yield of 10 ton Biodung + 50% NPK treated plot. Similar results were observed in FYM treated plots also

d) In both the years maximum yield was obtained in 10 ton biodung + 100% NPK treated plot but optimum yield was obtained in 5 ton biodung + 50% treated plots (Table 17, Graph -5, 6 & 7)

TABLE NO. 17
AVERAGE YIELD TWO YEARS

Sr.No.	Treatments	Grain	Straw	Total
1	**100% NPK**	**23.47**	**30.12**	**53.59**
2	**5 Ton FYM/ha**	**13.89**	**20.8**	**34.09**
3	5 Ton FYM/ha			
	+ 100% NPK	30.24	37.09	67.33
4	+ 75% NPK	29.55	36.90	66.45
5	+ 50% NPK	27.15	35.24	62.39
6	**10 Ton FYM/ha**	**18.63**	**28.42**	**47.05**
7	10 Ton FYM/ha			
	+ 100% NPK	34.38	44.2	78.58
8	+ 75% NPK	33.95	37.09	71.04
9	+ 50% NPK	30.92	37.62	68.54
10	**5 Ton Biodung/ha**	**15.23**	**24.16**	**39.39**
11	5 Ton Biodung/ha			
	+ 100% NPK	35.49	43.32	78.81
12	+ 75% NPK	33.62	41.24	74.81
13	+ 50% NPK	33.45	41.35	74.80
14	**10 Ton Biodung/ha**	**20.92**	**29.04**	**50.32**
15	10 Ton Biodung/ha			
	+ 100% NPK	39.09	51.35	90.44
16	+ 75% NPK	37.25	46.02	83.27
17	+ 50% NPK	34.33	41.45	75.78

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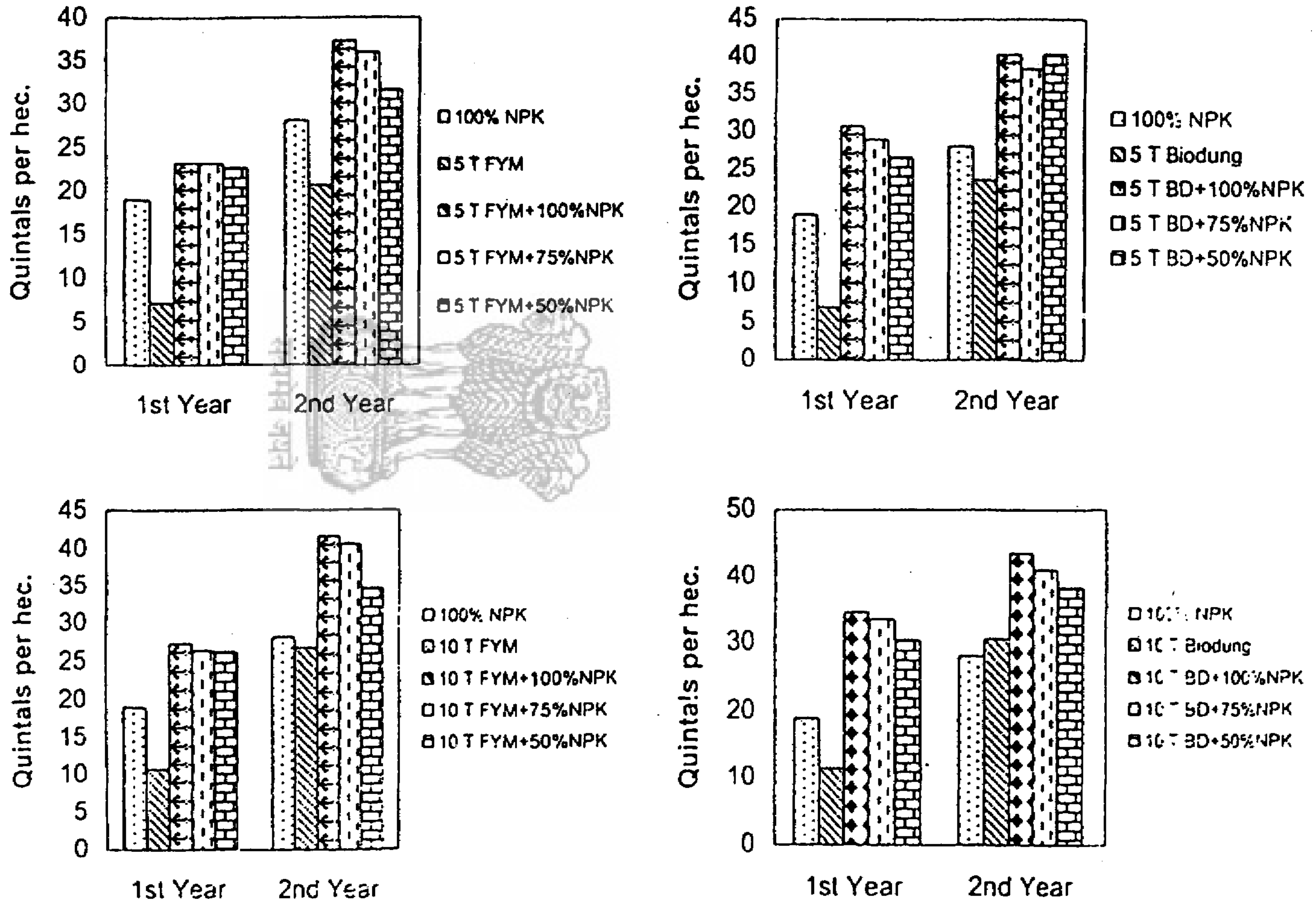
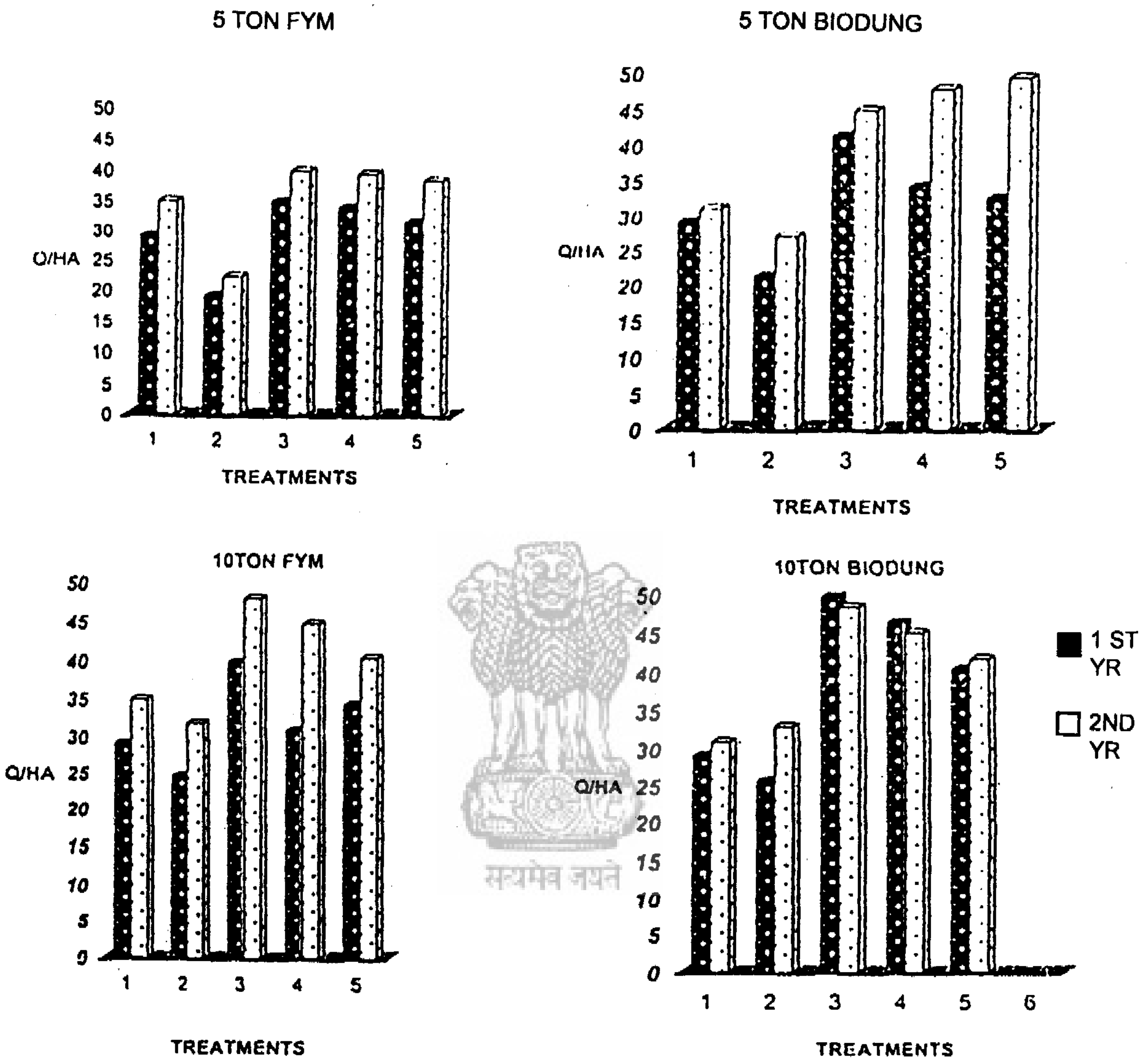
WHEAT GRAIN YIELD IN TWO SUBSEQUENT YEARS



Graph 7

Wheat Straw Yield in Two Subsequent Years



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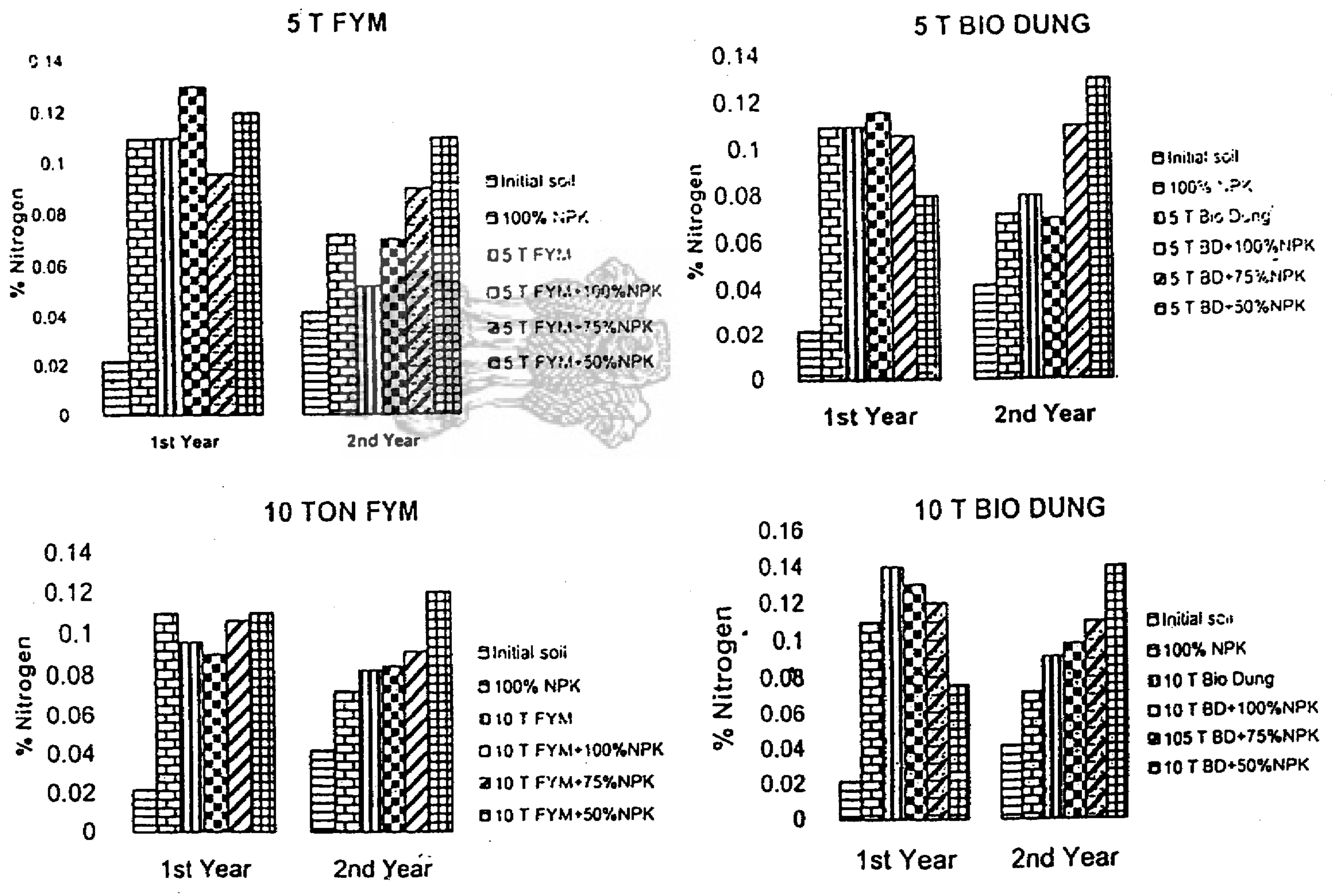
5 TON FYM/HA	10 TON FYM/HA	5 TON BD/HA	10 TON BD/HA
1) 100%NPK	1) 100%NPK	1) 100%NPK	1) 100%NPK
2) 5T FYM	2) 10T FYM	2) 5T BD	2) 10T BD
3) 5T FYM +100%NPK	3) 10T FYM +100%NPK	3) 5T BD +100%NPK	3) 10T BD +100%NPK
4) 5T FYM +75%NPK	4) 10T FYM +75%NPK	4) 5T BD +75%NPK	4) 10T BD +75%NPK
5) 5T FYM +50%NPK	5) 10T FYM +50%NPK	5) 5T BD +50%NPK	5) 10T BD +50%NPK

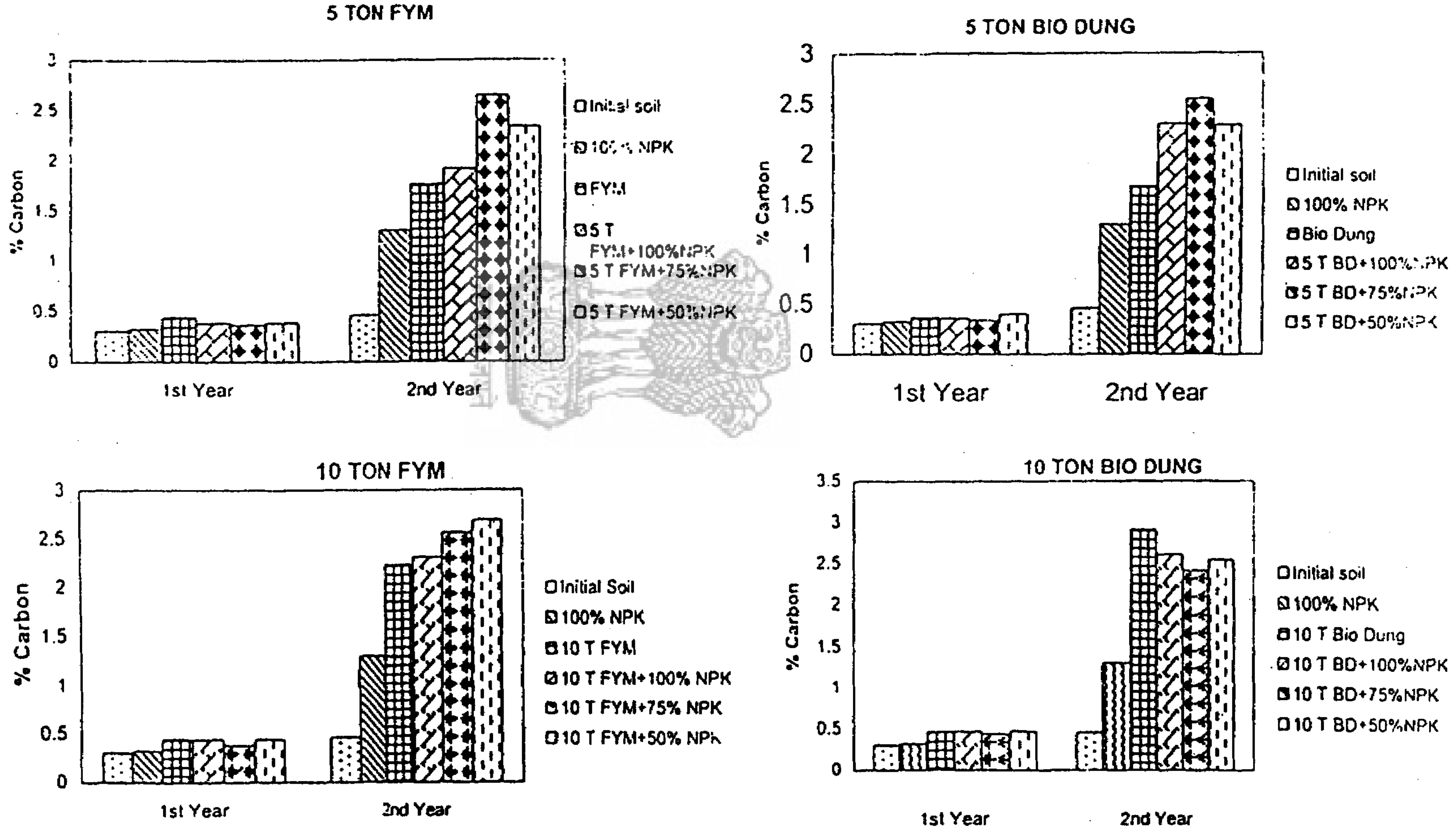
Graph 8

Changes in Nitrogen content of Soil in Two Years



Graph 9

Changes in % Carbon of Soil in Two Subsequent Years



Input fertilizer cost / Quintal yield :

1. It is clearly evident from table (18 & 19, Graph 7 & 8).

a) Yield increase in various treatments is parallel to the input cost/quintal yield produced however it is less in the second year as compared to that of first year.

b) Cost wise and yield biodung is better than FYM

c) 5 ton biodung + 100%NPK and 10 ton biodung + 100% NPK are superior in yield as compared to only 100% NPK treated plot increase in yield and fertilizer input cost/quintal of yield produced is parallel (Graph 7 & 8).

d) The yield produced in 5 ton biodung + 50% NPK and 10 ton FYM + 50% NPK is comparable but cost wise biodung treatments is 20% cheaper than FYM treatments (Table18 & 19, Graph 7 & 8).

e) Similarly the yield of 5 ton FYM + 75% NPK and 10 ton FYM + 75% NPK is comparable while 5 ton FYM treatment is approximately 60% cheaper than 10 ton FYM treatment

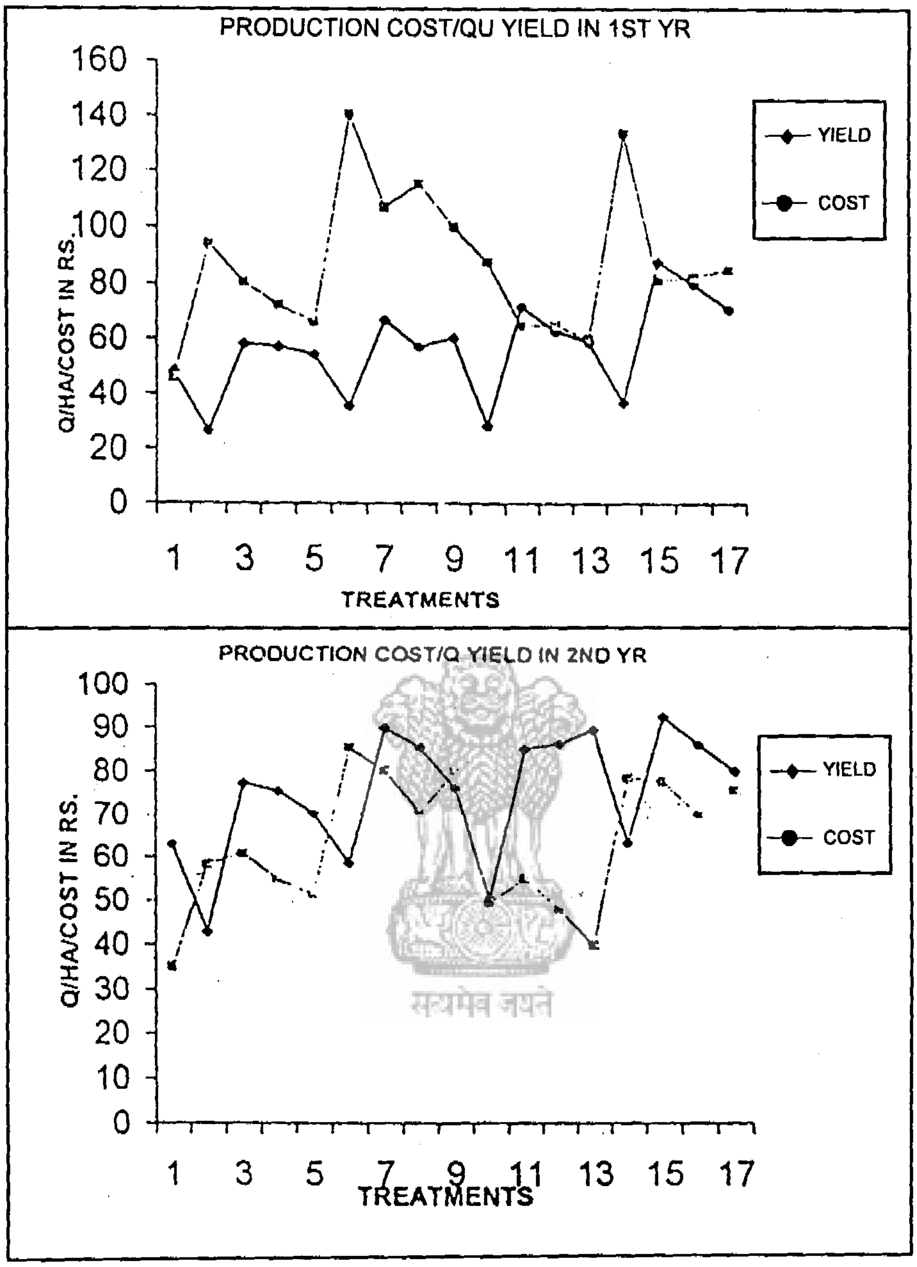
f) In first year In 5 ton biodung + 50% NPK treated plots yield/ha and input cost/quintal is almost equal while in the second year the same treatments proves to be the best as the yield is optimum and fertilizer input cost/ quintal of yield produced is minimum in this treatment.

Effect on soil in terms of carbon and Nitrogen :

1. Considerable increase in carbon and Nitrogen (total) content of soil as compared to initial soil in both the years (Graph 9 & 10).

2. Significant increase was observed in Nitogen content of soil in biodung and FYM treated plot in the first year and organic matter content (carbon) in the second year (Graph 9 & 10).

Graph 11



PRODUCTION COST/QU YIELD IN 1ST YR

PRODUCTION COST/Q YIELD IN 2ND YR

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TREATMENTS

1 100% NPK
2 5 T FYM
3 5 T FYM+100% NPK
4 5 T FYM+75% NPK
5 5 T FYM+50% NPK
6 10 T FYM
7 10 T FYM+100% NPK
8 10 T FYM+75% NPK
9 10 T FYM+50% NPK
10 5 T BIODUNG
11 5 T BIODUNG+100% NPK
12 5 T BIODUNG+75% NPK
13 5 T BIODUNG+50% NPK
14 10 T BIODUNG
15 10 T BIODUNG+100% NPK
16 10 T BIODUNG+75% NPK
17 10 T BIODUNG+50% NPK

TABLE NO.18

PRODUCTION COST PER QUINTAL OF YIELD IN VARIOUS TREATMENTS

(IN FIRST YEAR)

Sr.No.	Treatments	Total Yield Qt./ha.	Total Input Cost of manures (Rs.)	Fertilizer Input Cost/Qt. (Rs.)
1	**100% NPK**	**48.19**	**2,204/-**	145.73
2	**5 Ton FYM/ha**	**26.18**	**2,500/-**	94.41
3	5 Ton FYM/ha			
	+ 100% NPK	58.36	4,074/-	80.60
4	+ 75% NPK	57.31	4,153/-	72.46
5	+ 50% NPK	54.53	3,602/-	60.05
6	**10 Ton FYM/ha**	**35.52**	**5,000/-**	140.76
7	10 Ton FYM/ha			
	+ 100% NPK	67.26	7,204/-	107.10
8	+ 75% NPK	57.48	6,653/-	115.74
9	+ 50% NPK	60.78	6,102/-	100.39
10	**5 Ton Biodung/ha**	**28.29**	**2,500/-**	**88.37**
11	5 Ton Biodung/ha			
	+ 100% NPK	72.31	4,704/-	65.05
12	+ 75% NPK	63.39	4,153/-	65.51
13	+ 50% NPK	59.58	3,602/-	60.45
14	**10 Ton Biodung/ha**	**37.15**	**5,000/-**	134.58
15	10 Ton Biodung/ha			
	+ 100% NPK	88.6	7,204/-	81.30
16	+ 75% NPK	80.24	6,653/-	82.91
17	+ 50% NPK	71.24	6,102/-	85.65

TABLE NO. 19

PRODUCTION COST PER QUINTAL OF YIELD IN VARIOUS TREATMENTS (IN SECOND YEAR)

Sr.No.	Treatments	Total Yield Qt /ha	Total Input Cost of manures (Rs)	Fertilizer Input Cost/Qt (Rs)
1	100% NPK	63.00	2,204/-	34.98
2	5 Ton FYM/ha	42.90	2,500/-	58.27
3	5 Ton FYM/ha			
	+ 100% NPK	77.3	4,704/-	60.85
4	+ 75% NPK	75.6	4,153/-	54.93
5	+ 50% NPK	70.26	3,602/-	51.26
6	10 Ton FYM/ha	58.60	5,000/-	85.32
7	10 Ton FYM/ha			
	+ 100% NPK	89.90	7,204/-	80.13
8	+ 75% NPK	85.60	6,053/-	70.71
9	+ 50% NPK	76.31	6,102/	79.96
10	5 Ton Biodung/ha	50.50	2,500/-	49.50
11	5 Ton Biodung/ha			
	+ 100% NPK	85.30	4,704/-	55.14
12	+ 75% NPK	86.33	4,153/-	48.10
13	+ 50% NPK	89.6	3,602/-	40.20
14	10 Ton Biodung/ha	63.5	5,000/-	78.74
15	10 Ton Biodung/ha			
	+ 100% NPK	92.6	7,204/-	77.79
16	+ 75% NPK	86.30	6,053/-	70.13
17	+ 50% NPK	80.30	6,102/-	75.99

TABLE NO. 20

AZ. COUNT OF SOIL IN RELATION TO CARBON & NITROGEN CONTENT OF SOIL IN FIRST YEAR

Sr.No.	Treatments	% C	%N	Av.N Kg./ha	Az Count
1	**100% NPK**	**0.326**	**0.11**	**364.08**	**4866**
2	**5 Ton FYM/ha**	**0.446**	**0.11**	**374.16**	**4433**
3	5 Ton FYM/ha				
	+ 100% NPK	0.384	0.13	386.52	4666
4	+ 75% NPK	0.366	0.096	368.47	5300
5	+ 50% NPK	0.386	0.12	351.71	8033
6	**10 Ton FYM/ha**	**0.448**	**0.11**	**324.64**	**5300**
7	10 Ton FYM/ha				
	+ 100% NPK	0.440	0.096	304.23	5833
8	+ 75% NPK	0.382	0.090	324 67	5166
9	+ 50% NPK	0.442	0.106	347.00	6900
10	**5 Ton Biodung/ha**	**0.367**	**0.110**	**377.26**	**6300**
11	5 Ton Biodung/ha				
	+ 100% NPK	0.359	0.116	335.73	6266
12	+ 75% NPK	0.339	0.106	379.25	9200
13	+ 50% NPK	0.402	0.08	335.75	11866
14	**10 Ton Biodung/ha**	**0.477**	**0.140**	**433.74**	**15833**
15	10 Ton Biodung/ha				
	+ 100% NPK	0.474	0.130	283.00	9266
16	+ 75% NPK	0.443	0.120	431 84	9666
17	+ 50% NPK	0.478	0.076	325.61	13233

3. Biodung treated plot both @ 5 ton/ha and 10 ton/ha showed more increase in carbon and Nitrogen content in residual soil as compared to FYM treated plots in both the years.
4. Carbon and Nitrogen of FYM @ 10 ton/ha + 100% 75% and 50% NPK as comparable with Biodung @ 5 ton/ha with 100%, 75% and 50% NPK fortification.
5. Increase in organic matter content of soil in FYM and biodung treated plot has directly reflected in increasing the Azatobacter count and maximum Azatobacter count (15,833) was observed in only 10 ton biodung/ha treated plot followed by the increase in total and available Nitrogen content of soil in that treatment (Table 19)
6. Use of chemical fertilizer alone as well as with FYM and biodung (@ 5 ton/ha and 10ton/ha) has decreased the microbial (Sp. Azatobacter) population in soil. However 50% NPK fortification along with FYM and biodung has helped in promoting microbial population.

9. IMPACT ANALYSIS WITH INDICATIONS

In the light of the main objectives of the project, efforts were made for approximately 30 months (sanctioned duration 24 months) to field optimize the biodung method of compost preparation and field try it on agricultural crop at farm level Both these efforts were quite successful, as biodung method was proved user friendly to farmers and biodung manure was proved better than FYM both in the production of yield as well effect on soil fertility specially in increasing soil microbial population and leading to good soil health. It has been experienced during the field extension of biodung technology that as the method does not require any specific structure (tank or pit), and it can be made at any shady site where water source is near, it became more user friendly to farmers. Use of polythene sheet over biomass heap although accelerates microbial activity, and catalyzes composting process its maintainance at farm level became a limitation, thus this was replaced by soil sealing by the farmers themselves (Example farmers of Pawnar, Saidapur and Gorakhpur). This also indicated their involvement acceptance of technology at field level.

Detailed field trial experiments of two years in Haladgaon as discussed earlier scientifically proved that

Biodung is better than FYM i.e.effect of 5 ton biodung comparable with the effect of 10 ton farm yard manure in yield as well as nutrient status and microbial population of residual soil. It was also proved that chemical fertilizer in 50% dose along with FYM or biodung not only showed considerable increase in yield over 100% NPK treatment but also increased the nutrient uptake in grain, total microbial population of soil and nutrient and organic matter status of soil. Among various combinations of FYM and biodung with chemical fertilizer @ 100%, 75% and 50% fortification, 5 ton Biodung + 50%

NPK treatment proved to be the best and economically viable for farmers as it showed optimum yield and minimum fertilizer input cost/quintal of yield produced as compared to the all other fertilizer treatment.

It was also observed that increase in organic matter content of soil in FYM and biodung treatment has directly reflected on increasing the microbial population (specially Azatobacter and available nutrient status of soil which adds to the natural soil fertility whereas use of chemical fertilizers alone as well as with FYM and biodung in 100% and 75% dose has decreased the microbial count and available nutrient status of residual soil. These results were also shown to farmers in the third year field trial experiment when the effect of biodung and FYM alone as well as with 50% NPK was shown to the farmers in bigger plots (100 meter). Luxriant green colour, pest free crop and high vegetative growth attracted the attention of farmers and beside Haladgaon farmers of surrounding villages also visited the field and said that the crop was best in that area.

But evaluating the practical difficulties experienced during the implementation of the project it appeared that manure produced on farm using the available farm biomass at a time is very less (500 to 1000 Kg.) compared to the demand for one crop which is minimum 2 tons/acre, specially for small farmers who does not possess cattles and does not have the capacity to buy farmyard manure. In the light of this it is suggested that if biodung manure is prepared continiously throughout the year it can fulfill the demand of the manure required per acre. For example a small farmers collects minimum 20 Kgs of waste daily from his farm including farm sweepings leaf litter, grasses, monsoon weeds kitchen waste and cattle waste, etc therefore he collects 600 Kgs. of biomass in a month which can give atleast 300 Kgs. of compost, If 300 kgs. compost is prepared per month continiously upto 12 months than 3,600 Kgs. compost can be prepared at the end of year. Beside this at least 1000-1500 Kgs. crop residues are generated after single crop harvesting. if two crops are taken per year minimum 3000 Kgs of green and dry biomass is collected, if it is composted in two seasons separately that is Kharif and Rabi minimum 1,500 Kgs compost can be prepared in two seasons of the year. In this way 3,600 Kgs. from daily generated waste and 1,500 Kgs from crop harvested waste total approximately 5 ton compost can be prepared in a year which is sufficient for one hactare land for one year. This shows that if properly managed a small farmer having 2.5 acre/land produce the compost required for his land from the biomass resources available on farm.

Besides this, he will also save 50% expenditure on chemical fertilizers Increase in yield with low investment will lead to more income generation for farmers.

In the case of big farms (more than the 5 - 10 acres) demand of organic manures required is larger than the available biomass produced on farm, if the farmers possess cattles than this demand can be partially fulfilled by cattle manure, but purchasing the cattle manure from outside makes it more costly affair as compared to chemical fertilizer application. However large amount of organic biomass is wasted in urban and semi urban areas as vegetable market waste, household kitchen waste. muncipal garbage etc. which can be very well converted into good organic manures and used for crop production. This can also became a commercial venture for landless and unemployed village youth.

The overall goal of agricultural and forestry research has been to increase food fibre and timber production. the main sustainability concerns have been yield, i.e. yield stability and economic viability (spencer and Swift 1992) while ecological approach primarily focusses on production of natural ecosystem, where sustainability is viewed in terms of the maintainance of stability of ecosystems' productivity and the tightness of the nutrients cycle. Appropriate researches are required for bringing these two approaches together i.e. an ecosystem perpective of agriculture which simultaneously addresses production and conservation aspects. The priorities and concerns in such agriculture system may different at various levels. For example a farmer may perceive soil fertility at the scale of farming systems, purely interms of the productive capacity of his arable crop fields but at the regional scale society or government may also be concerned about soil fertility but more from the point of view of cost of maintaining fertiliser subsidies and protecting environment from nitrate leaching. Sustainable agriculture requires reconsilation of these scaler differences and research must consider the integrated approach for sustainable land development. Much thought needs to be focussed on approaches which reconsile the requirements for qualitative measurements within the holistic nature of the concept. some of the issues which dominate this conceptual basis of sustainable agriculture are --

a) The trend and stability of yield of desired product (Spencer and Swiff, 1992) and the necessity of taking a long term view of agricultural production to ensure the supply of products to future generation.

b) The efficiency of use and the capacity to review the resources (Soil water, genetic resources and labour) upon which all agriculture depends; this is often presented in terms of an integrated approach to all aspects of crop and farm management.

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c) The influence of internal and external interdependencies, including the desire ability of freeing farmers from excessive reliance on external sources of crop nutrients, farm energy and crop protection and the effect of agricultural practice on the surrounding environment.

d) The importance of considering all aspects of the farming environment together rather than in isolation, this includes agronomic, ecological economic, infrastructural, social cultural and political factors.

e) The importance of Spatial scale in determineing the significance of different components of sustainability and the ways they interact, sustainable agriculture can be considered from the scale of the individual crop, fields through that of the farming systems and the villages landscape to national regional and global levels.

10. SPECIAL FEATURES :

Biodung method is a new technology for compost preparation and its special features are :

1. Compost is made on above ground surface heaps under tree shade, it does not require any special structure like pits or tanks, thus saves cost and drudgery for transportation of biomass to specific sites.
2. Chiefly made from agricultural field biomass, monsoon weeds and leaf litter requires very little cowdung (1 to 2% of the weight of biomass) as microbial inoculum. Thus the farmers who possess less or no cattles can also make it.
3. Biodung is scientific method of composting in which polythene coverage over the biomass provides optimum conditions of temperature moisture and aeration for microbial activity. Thermophilic biodegradation (at 50 - 60 °C) helps inkilling the weeds seeds as well as pathogenic microorganisms, thus the compost is prepared in short period 1-2 months as compared to traditional methods (6-12 months) and ensures good quality of compost.
4. Biodung made from the green monsoon weeds or leafy biomass contains more Nitrogen (1 to 1.2%) and good humus content as compared to Farmyard manure
5. Biodung compost is not only good organic source of carbon, and NPK but also a rich source of microflora specially cellulose degrading fungi like Asperigillus sps and Trichoderma sps and Nitrogen fixing bacteria in soil like Azatobacter and Rhizobium. Biodung also helps in enriching the soil microflora and improving the soil health which adds to the natural fertility of soil.

6. Although the production cost of biodung manure is comparable with that of F Y M (market rate) ,it produces almost double yield than FYM thus the input cost /quintal yield produced is almost half in biodung compared with that of FYM . there fore the farmers who does not posses cattle can also make good manure at the half cost as that of FYM and get good yield.

7. Biodung (predigested organic matter after 15-20 days) becomes a very good substrate for earthworms.Earthworms digests the biodung and convert it in to fine black colour granular vermicompost. Biodung promotes the growth of local earthworms in the soil specially in the horticulture like banana, orange and guava plantation where the soil condition is shady humid and undisterbed. Increase in earthworm population in the soil is indicator of good quality of soil.

8. It is an easy low cost and short term technique of compost preparation which includes recycling the terrestrial weeds or biomass hazards which otherwise creates pollution problems and are unhyginic thus it is an environmental friendly and safe recycling technique. Soil sealing in place polythene coverage also make it user friendly and environmental friendly.

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ANNEXES

CHAPTER V - (II)

ECONOMIC CONTIBUTION OF CATTLE, PRODUCTS AND BY-PRODUCTS

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CHAPTER V – II

ECONOMIC IMPORTANCE OF COW AND COWPRODUCTS

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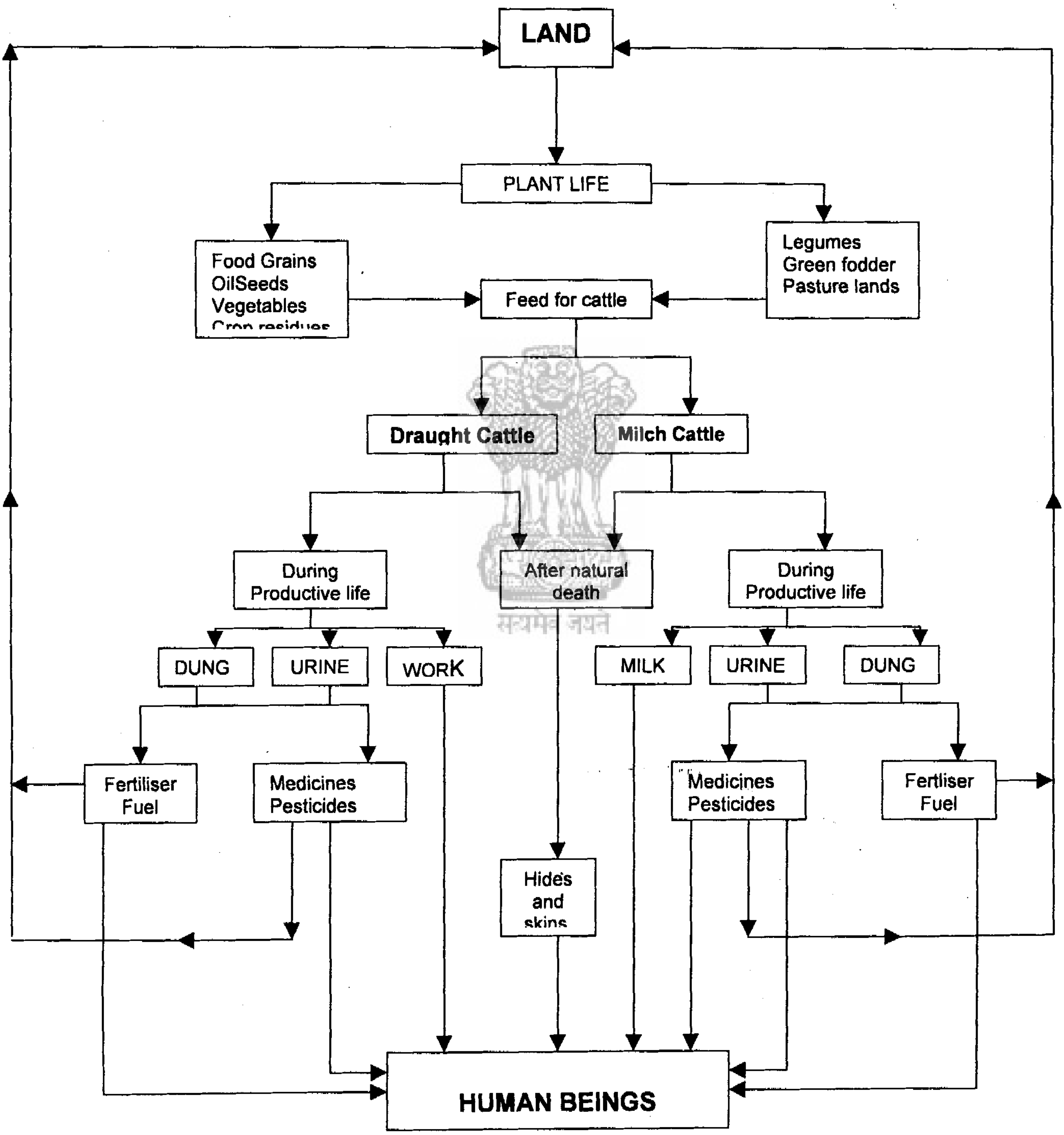
FLOW –CHART SHOWING THE INTER-RELATIONSHIP BETWEEN LAND, CATTLE AND MAN



ANNEX V-II (2)

Paragraph 5.2.3

OUR SCRIPTURES ON COW MILK

A paper on Nutritive Value of cow milk as understood by ancient Indians and as propounded by Vedas and other scriptures – presented at the Seminar on Cow's milk is Amritam, organised by the Love 4 Cow Trust, at New Delhi on 7th July 2002.

By : Ish Kumar Narang
Assistant Commissioner(Dairy Development)
Government of India

1. Milk has been a part of diet of Indian society since times immemorial. Our scriptures are full of references on importance and value of milk for human life. And the only milk, apart from mother's milk, known to Indians was Cow Milk only which has been equated with Amrita.

2. *Man has been in search of an Elixir or Nectar or "AMRITA", a sip or two of which could make him free from all sufferings and make him immortal. It is not known yet, whether such an elixir ever existed but India's ancient scriptures have described cow 'Milk' as 'AMRITA'.*

"Amritam Vai gvam khriramityah tridshadhip ,
tasmad dadatim yo dhenumamatrim sa Praychhti".

(*Mahabharatha Anu.65-46*)

This Shloka of Mahabharatha means:

"Cow's milk is Amrita .This has been stated by Indra, the king of gods. Therefore if one donates a cow, he donates Amrita".

Rig Veda (1-71-9) also states

"Goshu Priyamamritam rakshmana"

'Cow milk is Amrita..It protects us (from disease). Hence Protect the cows.

3. **"Raj Nighantu"**, an authoritative treatise on "Ayurveda" also describes milk as Amrita or Piyush. There are similar descriptions in a number of other scriptures, which have clearly pronounced that **if at all there really is some thing called 'Amrit' in the world, it definitely & decidedly is cow milk alone.**

4. What is for consideration here is whether Cow milk has been compared with or described as 'Amrita' only on sentimental or religious grounds or whether there is any description of certain qualities or properties of milk and milk products which help cure certain ailments or enhance the longevity or vitality of life to the extent of making the regular user of milk an 'immortal' or a healthy person with a long life. Let us therefore, attempt to have a look at various scriptures and other relevant books to find out the truth, to find out why milk has been compared with 'Amrita'.

5. There are various references in our scriptures which describe cow milk as a drink which provides vitality, the inner strength to fight diseases, a complete balanced diet, which gives 'Subudhi' or the right thinking power or wisdom.

PROPERTIES OF MIK AS DESCRIBED IN "CHARAK SHASTRA"

6. 'Charak Shastra' is one of the most ancient books in the history of medical science. 'Rishi Charak' was an eminent Indian Physician and his book 'CHARAK SHASTRA' is followed even today by practitioners of Indian system of Medicine – The Ayurveda. CHARAK has described milk as:

> **"Swadu, shitam, mridu, snigdham, shalakshanpichhlam;**
> **Guru, mand, prasanna cha gavyam dashaguna paya"**
> *(Charak sutradhan 27-214)*

This means Cow's milk is tasteful, sweet, has a fine flavour, is dense, contains fat, but light, easily digestible, and not easily spoiled. It gives us tranquility and cheerfulness. In the very next shloka, it says that because of the above properties, cow's milk helps us build up vitality (OJA).

> **'Khyeeryojaskara punsam'** –
> Milk increases vitality or Oja in man.

7. DHANVANTRI, another ancient Indian Physician has stated that cow's milk is a desirable and preferred diet in all types of ailments. Not only that, its regular use protects the human body from Vata, Pitta and heart diseases. Similarly even modern science tells us that cow milk helps in curing uric acid problems and acidity conditions in stomach .

IMPORTANCE OF COW AND COW MILK AS DESCRIBED IN VEDAS:-

RIG VEDA

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8. There are a number of Mantras in all the four Vedas which describe the importance of cow and cow milk not only as a complete food but also as a curative drink. Of course, the feed and fodder given to cows was also required to be of a very high quality and having various herbs as its essential ingredients. Rig Veda in its ninth Mantra of the 73rd Sukta in 10th Chapter (10-73-9) says that cow provides in its milk the curative and prophylactic effects of the medicinal herbs it eats. Cow's milk was thus used not only to cure but also as a preventive in certain diseases. Again Rigveda in another Mantra (5-19-4) describes cow milk as the most desirable and likeable drink.

ADHARWA VEDA

9. Similar properties of milk as provider of vitality and strength are stated in the following Mantra (4-21-6) of the Atharva veda.

"Yuyam gavo medyatham krishm chiskhyreeram, chit krinutha supratikam, Bhadra Griham Krinuth, bhadravapo beihad vo vya uchachate, sabhasu."

Meaning - The Cow, through its milk, transforms a weak and sick person into an energetic person, provides vitality to those without it and by doing so, makes the family prosperous and respectable in the "civilised society".

10. Obviously, a family of sick and weak members can neither be prosperous not respectable in the civilised society. This Mantra incidentally points out a subtle norm that good health in a family was taken as an indicator of prosperity and respect in the Vedic society. Material wealth alone was not the parameter of respectability in the society as is the case today. In other words, availability of plenty of cow milk in a household was taken as an indicator of prosperity and status. The learned Sadhus, guests (Atithies) were also offered milk or were rather greeted with milk and milk products and a type of 'Bhat' made with milk, rice & ghee. This was probably some version of "kheer" made with rice and milk these days in most parts of India. This tradition is described in Atharva Veda's Mantra 18-4-16 and 18-4-19. It is because of these nutritive and vitalising properties of cow milk that there is a blessing in Atharva Veda (18-4-34) saying

" Dhenvah dhanaah oorjam asme vishvaha duhanaa tantu"-
Meaning: May the milch cows for ever continue to provide you with their nutritious and energy-giving secretions (milk).

The preventive and creative qualities of cow milk.

11. The preventive and curative qualities of milk are also described in Atharva Veda. The following Mantra tells us about the curative value of cow milk in **heart diseases and leucoderma (Hriday Rog and Pandu Rog)**

> **"Anu suryamudyataam hridyoto harima cha te**
> **go rohitasya varnen ten twa paridadmasi".**

It says **milk from a red colour cow helps cure the above ailments.**
As may be seen from the transparency, (not included here), there is a proper time prescribed for taking milk for curing these ailments.

THE IMPORTANCE OF CURD (Made from cow milk) IN VEDAS

12. Like milk, the curd (Dahi) made out of cows milk has been described as a likeable food not only for the humans but of gods as well. The following Mantra of Rigveda (10-179-3) aptly describes "Dahi" (curd);

Shratam manya oodh nishrat magnow sushraatam manye tadyate naviyah.
Madhyen dinasaya sevanasya dadhana pivender vajrinpuru krijjushanah.

Meaning **"Milk has first been "cooked" or processed in the udder of cow and thereafter, it has been cooked or processed on fire and therefore "Dahi"(curd) made out of this milk is really healthy, fresh and nutritious. A person doing hard work should consume this Dahi during mid-day when the sun is shining".**

13. This Mantra indicates at least four important things. It says the milk has been "cooked" in the udder of the cow and, therefore, the curd is healthy & fresh .

(i) "Cooked in the Udder" is an indicator of a bio-chemic aspect of milk. We know fresh milk drawn form the udder of a healthy cow does not get spoiled for first 2-3 hours due to presence of a natural enzyme called –'lactoperoxidase' in milk. Modern research has now developed a technique to regenerate this naturally occurring enzyme to enhance the life of raw milk by another 2-3 hours without further processing or cooling.

(ii) The second aspect is that the "cooking" of milk in udder refers to production or secretion of milk from a healthy udder, free from diseases . We now know that milk from a sick cow /udder produced under unhygienic conditions would be having a large number of undesirable bacteria and cannot give good curd.

(iii) The Mantra further tells as that milk was heated or cooked on fire before making curd even in those days. The microbiology and chemistry of milk and curd was thus not unknown to the Vedic society/civilization.

(iv) This Mantra refers to the best time of consumption of curd to be during mid-day, when the sun shines our on head.

Similarly the 10th Mantra of 187th Sukta of the 1st chapter of Rigveda (1-187-10-Rigveda) also describes "Karambh" – a combination of Dahi, ghee and sattu (malt) – as having medicinal, prophylactic and nutritional qualities.

THE IMPORTANCE OF COW MILK GHEE

14. The Vedas describe "ghee" (melted-dehydrated butter or butter oil) not only as an ingredient essential for performing "Yagna or Havan" but also as the first and the most essential among all foods. There are, therefore, prayers in Rigveda(10-18-2) and Atharva Veda (3-12-1 and 3-12-4) seeking that God may provide us with so much of ghee that our houses are always full of this most nutritious food.

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The 8th Mantra of 12th kand of the 3rd chapter of Atharvaveda (3-12-8 Atharva Veda) emphasises the importance and value of ghee by referring to the "stream of ghee- full of elixir – **"ghritasya dharamariten sambhritam"**. (slide 10) Similarly At several other places in the Vedas, ghee has been described as a (flawless) Nirdosh food, which increases body vigor and vitality (Rigveda – 10-19-7). The use of ghee strengthens the body and helps enhance the life span (Atharva Veda (2-13-1).

"COW AS THE PROVIDER OF AMRITA"

15. Cow has been described as **"Sabardudha"** (Slide 11) in Rigveda at 1-2-3 and 3-55-16. **Grifithis, Skandaswami and Venkatmadhava** have all interpreted the word **"Sabardudha"** to mean the **"provider of Amrita"** Others have interpreted this as provider of all "wealth". Both the interpretation aptly describe the importance of cow in vedic society.

THE SACRED COW:

16. There are innumerable such references in all ancient Indian scriptures from Vedas to Mahabharatha and Charak or Sushenta which state that cow milk and milk products

have been in use in ancient India not only as a source of nutrition but also as a curative and prophylactic food/medicine. It is because of these qualities of cow's milk that cow has been treated as **"Cow Mother"**, a provider of Amrita, provider of health, wealth, prosperity, fame and respect. This also made the cow an object of worship and reverence. While praying for freedom and prosperity for nation, **the Aryans, prayed for high yielding milk cows** as well (Dagdhri Dhenu) (Dudharu cows) in Yajurveda Mantra 22-22) for the country.

17. This also reminds us of the coin bearing the figure of **"Kakudman Bull"**(slide 13) found from the remains of Mohanjodaro, which now forms the insignia of **National Dairy Development Board (NDDB)** our institution of modern day dairying, an institution of national importance. This Bull Symbolizes the cow and its' progeny and desire and expectations of the millions of our dairy farmers to take India into its glorious past having thousands of "Dugdha Dharas" – streams of milk, to transform the country again to a land of "Kamdhenus"- providing AMRITA, the elixir of life, to bring health, wealth and prosperity to our country.

Well, in the end we may perhaps , say again

Amritam Vai gvam khriram. Cow Milk alone is Amrit.

With that, I would like to conclude. Thanks.

WHY COWS MILK IS AN INDISPENSIBLE PART OF BALANCED DIET?

DIETECIAN KIRANJEET KAUR

MILK IS THE FIRST FOOD A CHILD TAKES TO SURVIVE. IT IS THE BEST AND MOST COMPLETE OF ALL FOODS.

Milk has always been considered ideal food for infants and children and a good supplementary food for adults. There can not be any substitute for milk. What is a balanced diet? Balanced diet is defined as one which contains a variety of foods in such quantities & proportions that the n maintaining health vitality & general well being & also makes a small provision for extra nutrients to withstand short duration of leanness.

I Milk is a fine blend of all the nutrients necessary for growth and development of young once, it's a good source of protein fats sugar vitamins and minerals.

Cows milk is an integral part of balanced diet due to following reasons:-

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1. Availability

Dietary pattern varies widely in different parts of world depending upon socio economic status, customs, taboos etc. but milk surpasses all these barriers as it is the only food widely available and acceptable.

2. Nutritive value:

Lets compare the nutritive value of cows milk and buffaloes milk. All values are per 100ml of milk

NUTRIENTS	COWS MILK	BUFFALO MILK
FAT	4	8
SATURATED		
FATTY ACID	2	4
CHOLESTEROL	14	16
CALCIUM	120mg	210 mg
PHOSPHOROUS	90 mg	130 mg
CAROTENE	174 microgram	160 microgram
THIAMINE	.05 mg	.04 mg
FOLIC ACID	8.5 microgram	5.6 microgram
POTASSIUM	140 meq	90 meq

CALORIES AND PROTEINS:

Cow's milk provides **67 kcl** and buffalo milk provides **117 kcl** of energy per 100 ml. The protein content of cows and buffalo milk is about **3.2 gm** and **4.25gm** per 100 ml respectively. The milk proteins mainly consist of casein (about 80%) and whey (about 20 %). The proteins of milk are of a high biological value. This low content of protein cows milk from buffalo milk makes it ideal for infants and people with renal disorders. Milk proteins have excellent nutritional quality in terms of their constituent amino acids.

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The use of milk proteins as nutritional supplements to enhance dietary protein quality is very feasible as they can provide **lysine and tryptophan,** the limiting amino acids of wheat and maize proteins.

FAT CONTENT

Cow's milk contains practically half the fat content of buffalo milk. This reduces the risk of coronary heart diseases. Milk Fat -It's Good for You!

Parodi (1997) succinctly summarized the contribution of cow's milk fat components as potential anticarcinogenic agents. The best-characterized anticarcinogenic agent presently is conjugated. linoleic acid -In mouse models, dietary CLA has been shown to protect against the induction end proliferation of chemically-induced skin, for estomach, colon, prostate and mammary tumors. CLA has drawn a great deal of attention among dairy, medical and nutrition scientists, other components of milk fat also have biological effects with anti-cancer properties. Among these, sphingomeyelin, a component of the milk fat globule membrane, and thus particularly rich in buttermilk, contains the biologically-active components ceramide and sphingosine **CLA fed before puberty may impart long-lasting protection against induction and proliferation of tumors.**

Research suggests that CLA can decrease the amount of fat in the blood the amount stored in the body.

These effects could help in the fight against two other major killers, heart disease and obesity.

CARBOHYDRATES

The main sugar present in milk is lactose. It is less sweet than cane sugar. Lactose favours the absorption of calcium and phosphorous and the synthesis of some B complex vitamins in the small intestine.

VITAMINS

Milk has got valuable amounts of vitamin A, thiamine, riboflavin and nicotinic acid but is a poor source of vitamin C and E. It also contain vitamin 812 which is absent in vegetarian food items. Cows milk has more carotene than buffaloes milk. It is very important for vision. **FOLIC ACID PREVENTS ANEAMIA AND NEURAL TUBE DEFECTS IN NEWBORN. A distinct advantage of cows milk over human milk is that it's a better source of vitamin k which prevents hemorrhagic disease of newborn.**

MINERALS

The important minerals of milk are calcium, phosphorous, sodium and potassium. It is a poor source of iron. Less phosphorous content of cows milk allows better absorption of calcium. It is a good source of zinc which is required for synthesis of insulin by the pancreas and for immunity function. While calcium has been the main nutrient of interest in relation to milk and milk products and their effects on bone growth there is also the possibility that other nutrients which are found in milk may be important. Energy and protein modulate bone growth and micro nutrients such as zinc may also have an effect. The form of calcium salt may also be important. It has been proposed that the calcium phosphate in milk may have different mechanistic effects on bone compared to other calcium salts.

Studies show that milk and products may decrease the risk of osteoporosis through their effects on growth.

WATER

Milk contains about 85% water. It thus supplies both food and fluid

VARIOUS FORMS IN WHICH MILK CAN BE CONSUMED

Unfermented Products:

Skimmed milk is deficient in fats and fat soluble vitamins but the protein, sugar, minerals and vitamin B factors (except pyrodoxine) are well preserved. If skimmed milk powder is supplemented with vitamin A, D and pyri doxine, it is a comparatively cheap food of high nutritive value It is useful for the treatment of malnutrition, the nephrotic syndrome and the cirrhosis of liver. The addition of about 6 tablespoons of skimmed milk powder during the preparation of chapatis, custard, curd, etc will supply an additional 35 gms of protein.

Toned milk This is prepared by mixing equal parts of fresh buffalo milk (rich in fats) and reconstituted skimmed milk powder. The fat, protein, carbohydrate, vitamin and mineral contents -and thus the nutritive value -are the same as fresh cow's milk. It is a useful source of proteins for malnourished children and pregnant women.

Double toned milk contains only 1.5% fat.

Khoa (Mava) is milk in which the water content is reduced to between 20% and 25%.

It is prepared by vigorously boiling milk, and stirring it continuously to avoid burning at the bottom or overflowing at the top. When cooled, khoa forms a uniform mass, containing fats, heat-coagulated proteins and lactose. Khoa supplies 82 kcal (344 KJ) per table spoon **Chhana (cottage cheese)** is prepared by adding lemon juice to boiling milk, this precipitates casein, lactalbumin and fat. The liquid part (whey) is strained through a cloth and chhana is collected.

Whey is a byproduct of butter and cheese production and is frequently discarded. However, when dried it can be preserved, and forms a good source of nutrition in poorer countries.

Fermented Products:

Dahi (Curd) The mode of preparation of dahi varies considerably, as does its flavour. The flavour depends upon the type of lactic acid organisms predominant in the starter. It has same calorie value as that of milk from which it has been prepared.

Yoghurt is the name given to milk cuddled by a specific type of lactic acid bacillus called Lactobacillus bulgaricus

Lassi (Butter milk) When dahi is churned with water and fat is removed, the residual acid buttermilk is called lassi. Dahi and lassi can be prepared from whole or skimmed milk.

Ghee (Clarifled butter: Butter-fat) The composition of cow and buffalo ghee is similar: 99% fat, mostly saturated; about 1114 microgms (3800 iu) vitamin A per 100 gms, varying with cattle feed and the freshness; and about 30 microgms (99 iu) vitamin D per 100 gms, varying with the exposure of cattle to the sunshine.

Cheese Cottage cheese is an unfermented milk product, but cheese produced commercially in the west is a fermented product. There are over 400 varieties of cheese.

MYTHS ABOUT MILK:-

IS MILK PROTEIN, CASEIN, DIFFICULT TO DIGEST?

When cow's milk is heated (as in pasteurization). homogenized or acidified to produce a softer curd, the protein is used by infants as efficiently as is the protein of human milk.

IS MILK FAT DIFFICULT TO DIGEST?

Milk fat is considered to be the most complex of all of the common fats and exhibits unique physical, chemical and biological properties not easily duplicated by other fats. It is thought that this arrangement contributes to the ease of digestibility of milk fat compared with other fats.

To summarize cows milk is best source nutrition and every effort must be made to channelise the available milk to vulnerable groups like young infants I preschool children, pregnant and lactating women.

सत्यमेव जयते

Dietician
Guru Nanak Eye Centre
New Delhi

ANNEX V-II (5)

गायत्री– पंच गव्य चिकित्सा /योग+यज्ञोपैथी+पंचगव्य+प्राण चिकित्सा+प्राकृतिक चिकित्सा।

क्रमांक	दवाई का नाम	सेवन विधि	बीमारियों में उपयोग
1.	गायत्री पंचगव्य घृत।	10 मिली सुबह शाम गाय के दूध या पानी के साथ लेवें।	मिर्गी, दिमाग की कमजोरी, पागलपन, पाण्डुरोग(एनीमिया), बवासीर, विषमज्वर, बुद्धिमन्दता, याददाश्तकी कमी।
2.	गायत्री गौ आसव।	10 मिली दो–दो चम्मच। सुबह शाम।	दमा, सन्धि वात,खांसी में काफी उपयोगी है. मधुमेह के रोगी इसे न लेवें।
3.	गायत्री कामधेनु अर्क।	भोजन के बाद दो चम्मच शहद के साथ सुबह शाम।	खून में बढ़े कोलेस्ट्रॉल को कम करनें, वजन घटानें, बच्चों की खांसी, हृदय रोग, मधुमेह, उच्च रक्त चाप।
4.	गायत्री कामधेनु वटी।	सुबह शाम खांसी, पेट दो–दो गोली गर्म पानी के साथ।	पेट की तकलीफ, मधुमेह, उच्चरक्तचाप, हृदयरोग।
5.	गायत्री कामधेनु बालरस।	एक वर्ष से छोटे बच्चे आधा चम्मच, 5वर्ष –एक चम्मच, 5 से 15 वर्ष दो चम्मच पानी के साथ।	अपचय,अफरा(पेट फूलना), पेट के कीटाणु(कृमि) उल्टी, कफ फेंकना, अविकसित मस्तिष्क, दांत निकलनें के समय, रोग निरोधी शक्ति को बढ़ानें हेतु।
6.	गायत्री कामधेनु आईल।	दर्द की जगह लगाकर सिकाई करे।	जोड़ों का दर्द,
7.	गायत्री गोतकासव	दो चम्मच दोबार।	बवासीर, अजीर्ण,गैस की तकलीफ
8.	गायत्री कामधेनु मंजन	सुबह एवं शाम को	दांत, मसूढ़े, मुंह के छाले, टान्सिल, गले के रोग ।
9.	गायत्री नारी संजीवनी (अशोक)	सुबह व शाम दो चम्मच तीन बार, पानी के साथ	स्त्रियों के मासिक धर्म की अनियमितता, श्वेत प्रदर एवं इसकी वजह से कमर दर्द व पेट, सिर दर्द व चक्कर आना, नींद कम आना, कमजोरी में उपयोगी।
10.	गायत्री कामधेनु कारमीनेटिव (आँवला)	दो चम्मच दो बार	पाचक (कारमीनेटिव), नेत्र रोग, ज्वर, एनिमा, पीलिया, ल्यूकोरिया इत्यादि।
11.	गायत्री कामधेनु शक्तिपुंज (अश्वगंधा)	दो चम्मच, दो बार	जीवनी शक्ति वर्धक, श्वास रोग, अग्निमंदता, हृदय रोग।
12.	गायत्री कामधेनु अर्जुनारिष्ट (अर्जुन)	दो चम्मच, दो बार	हृदय रोग, घाव भरनें में, श्वेत प्रदर में।
13.	गायत्री कामधेनु मेधावर्धक (ब्राह्मी)	दो चम्मच, दो बार	(दीर्घजीवन)डी प्रेशन, मानसिक अवसाद मेधावर्धक।
14.	गायत्री कामधेनु पुनर्नवारिष्ट (पुनर्नवा)	दो चम्मच, दो बार	पीलिया, हृदय हेतु टानिक, एसाइटिज, सूजन एवं दर्द निवारक खून की कमी।
15.	गायत्री कामधेनु बिल्वासव (बिलपत्र)	दो चम्मच, दो बार	डायरिया, डीसेन्टरी, बवासीर, पीलिया।
16.	गायत्री कामधेनु (नागर मोथा)	दो चम्मच, दो बार	दस्त निवारक, अमिबाएसिस, डायरिया, डिसेन्टरी, दुग्धवृद्धि हेतु, अपच, ज्वर।
17.	गायत्री कामधेनु (गुडमार)	दो चम्मच, दो बार खानें के पहले	एसीडिटी निवारक, शुगर(मधुमेह) नाशक।
18.	गायत्री कामधेनु मुलैठी	दो चम्मच, दो बार	एसीडीटी,, बाल झड़ना।

गायत्री शक्ति पीठ, महाराणा प्रताप नगर, भोपाल

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ANNEX V – II (6)

Paragraph 12.1

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DUNG IS GOLD MINE

by Shri Venishankar M. Vasu

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PREFACE

One of the few nectars of this world is water, another is milk and the third one is cattle dung. With onset of what we call "modern civilization", we have been despising a few things and one of these is cattle dung. This is so because we have forgotten that the basis of our progress as a race depends on the optimal use of our resources, an important resource base being bovine dung. If a choice before mankind were put in crystal clear terms as to whether it chooses cattle dung or desertification of the earth, it would have definitely shed its despise for cattle dung and chosen it between the two.

Shri Venishankar M. Vasu has brought out in simple language but with hard facts, figures and proofs the consequences of government policy of slaughtering animals which are either not yielding milk or are useless as draught animals. The government has forgotten the third most important service rendered by animals i.e. providing dung which has been at the root of well laid out social and economic systems adopted by the Aryan population of this great nation since time immemorial.

The policies of state patronized, encouraged and rewarded violence have engulfed all living beings. This has happened due to the destruction of the concept of dung utility and espise for cattle dung.

The purpose of this essay is to highlight the unique and essential role of bovines and bovine dung in our economy and lifestyles and to stop the slaughter of our precious animals.

THE ONLY SOLUTION TO PROBLEMS OF SHORTAGE OF FOOD GRAINS, WATER, FUEL, SHELTER, GOOD HEALTH, NUTRITION, ERADICATION OF POVERTY, AND UNEMPLOYMENT - DUNG, DUNG AND ONLY DUNG ! !

What is despised of today by giving it the name of "dung-economy" is in fact the nucleus of prosperity of the Indian people. And that is why our ancient economists have described dung as the abode of wealth and prosperity and thereby impressed upon the unique utility of dung in relation to the Indian economy.

If we accept the concept that dung is the nucleus of our prosperity and has no substitute, the following will follow:

- Fertilizer will be cheaply available to us.
- Food grains can be produced and made available at reasonable rates.
- Our soil will retain its fertility.
- Cheap fuel will be available to the masses.
- Cheap housing can be provided in the rural areas.

Our ancient system of medicine i.e. Ayurved cannot subsist in the absence of dung and the absence of dung has put in peril the health in particular of our women.

I bow in reverence to such obliging ruminants on behalf of humankind!

With growing age, an animal may become useless for milk production, field work or for breeding. However, its age is never a detriment to its service of providing dung.

By unfettered breeding of cattle, the government has snatched away the availability of precious dung from the people and pushed the entire population in the dungeon of starvation, drought, poverty and chaos in all spheres of life.

And hence, Oh! my fellow countrymen, awake, rise and call for a halt to the government machinery and order them to reverse the policy which they have set in to snatch away the precious wealth of dung from our life.

As a result of disruption in the availability of dung, we have suffered on many fronts, like:

- Food grains have become costly and without the required nutritional value.
- Loss of soil fertility.
- Diminished opportunity to practice several vocations for both Hindu and Muslim population.
- The health of crores of women in the country at peril
- Our religious rights snatched away.
- Ayurved, our ancient system of medicine has suffered a severe blow
- Fuel has become scarce and costlier.
- Ash of dung very valuable to us is not available now.
- The flow of passing on lessons of rich experience from one generation to the other has stopped.
- Our forests are gradually being destroyed.
- Many social evils like addiction to liquor have become widespread.
- An acute scarcity of residential houses.

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GROWING NUTRITIOUS AND CHEAP FOOD GRAINS

No other fertilizer in the world is as cheap and harmless as dung fertilizer.

The Indian farmer is able to grow the best and cheapest food grains in the world with the help of dung manure. This alone is capable of providing stability to the Indian economy. However, due to western influence the government of India has resorted to unfrittered slaughter of animals resulting in disruption of availability of cattle dung, forcing farmers to use costly and harmful chemical fertilizers, thereby pushing up the prices of food grains and ultimately affecting the entire economy by throwing it in the dungeon of inflationary pressures. By cutting down the availability of bullocks and forcing the use of tractors, another dimension has been added to the entire murky affair. As a result, the once independent Indian farmer has now become dependent on others for availability of chemical fertilizers and tractors. He has become dependent on fertilizer plants, railways and money lenders or banks. The farmers have been pressurized into using chemical fertilizers by resorting to false propaganda about the advantages of chemical fertilizers. Besides, he is left with no other option because natural dung manure is not available to him. The use of chemical fertilizers might have marginally increased agricultural production. However, the cost of production has increased manifold and in addition the taste as well as the nutritional value from food grains have been lost. Rice is one of the main crops in our agricultural system. A major part of our land is under cultivation of rice and quantum-wise also, the maximum production is of rice and hence these figures relate to rice only. The table (1.1) indicates rising cost and production of rice per hectare in a few states with use of chemical fertilizers in India.

Table 1.1: Increase in rice production costs per hectare with use of chemical fertilizers as compared to yield.

State	Year	Total production cost of rice Rs. per hectare	Production per hectare (2.5 acres) in quintals	Production expenses / quintal in Rupees
Andhra Pradesh	1971-72	1476.33	25.22	51.53
	1980-81	3873.76	33.77	104.94
Assam	1971-72	841.57	16.23	49.9
	1980-81	1695.52	21.34	76.24
Bihar	1972-73	1188.65	17.03	50.03
	1979-80	2082.7	16.88	109.82
Karnataka	1973-74	2092.85	33.17	51.13
	1975-76	2600.82	32.36	69.36
Orissa	1971-72	837.96	16.84	40.13
	1979-80	1663.91	15.61	83.25
Tamil Nadu	1971-72	1616.18	26.16	53.47
	1979-80	3596.56	33.88	92.24
Uttar Pradesh	1975-76	1753.82	21.35	73.06
	1980-81	2563.88	22.63	94.01
West Bengal	1971-72	1255.89	18.39	54.15
	1978-79	1573.88	22.33	96.36

Indian Agriculture in Brief Published by Agriculture Ministry of Central Government. 19th Edition pp 274-279

Jowar and bajra are the staple diets for the poor and the stalk of these plants, which is the main food for cattle, have registered a growth in production expenses by 47% whereas its production has increased by only 5.5%.

Table 1.2 Comparison of rising costs for jowar and bajra with static yields.

State	Year	Production cost per hectare (in Rs.)	Production per hectare (in quintals)	Production expense per quintal (in Rs.)
JOWAR				
Karnataka	1971-72	394.62	6.18	45.06
	1975-76	638.6	6.44	80.62
Maharashtra	1971-72	471.27	5.73	57.03
	1978-79	716.32	7.12	71.7
Andhra Pradesh	1973-74	477.27	4.29	82.71
	1975-76	628.06	4.01	117.64
BAJRA				
Gujarat	1971-72	649.58	8.72	49.67
	1978-79	1582.51	16.4	74.79
Haryana	1972-73	814.31	5.31	111.41
	1975-76	844.36	7.51	64.54
Rajasthan	1970-71	309.74	8.41	36.82
	1975-76	329.46	2.39	108.38

If agriculture was based on the services of bullocks alone, and instead of chemical fertilizers only had dung or natural manure been used, the farmer would have been spared of the investment in tractors and the interest cost of such investments or the rent of hiring tractors. He would have been spared of the heavy cost of chemical fertilizers and interest, the cost of pesticides, the investment cost in motor pumps and its interest cost and the cost incurred for diesel or electricity for running such motor pumps. Thus he would have been spared a lot of heavy and at the same time unnecessary expenses which now get added to his cost of production. By burdening the farmer with unnecessary expenses, the cost of production for farmers has increased beyond their capacity. The food grains have become very costly, which has given rise to various agitations, riots, strikes by farmers demanding rise in prices of agricultural produce, and resultant chaos all over the country. Surprisingly, even after allowing the price increase to farmers because of violence and agitation, the farmers have not been benefited. The farmer has become a pawn in the hands of powerful exploiters who are exploiting the entire population through their evil designs. The price increase secured by farmers has been shared between oil and diesel producing countries and manufacturers of chemical fertilizers, tractors, pesticides and government agencies, leaving the farmer where he was! And hence, if anybody is responsible for agitation, riots, strikes, etc. aimed at securing increase in agricultural produces, it is the government functioning under the malicious guidance of western institutions. The government has endangered the interest of the masses by stopping the flow of cattle dung, and thus they have committed an inexcusable crime. Why should the people of this nation, not put them on trial for this crime?

LAND HAS LOST ITS FERTILITY

If the nutritional elements from soil which are consumed by crops are not replenished after each crop season, the soil loses its fertility gradually. The food grains grown on such soil become nutritionally poorer and eventually the land becomes barren and gets transformed into a wasteland. Table 1.3 shows the quantum of nutritional elements absorbed by crops from the soil, indicated as per acre consumption.

TABLE 1.3: The quantities of plant nutrients removed from soil by different crops (kg./ha)

CROP	Yield (grain) kg/ha	Nitrogen (N)	Phosphoric	Potassium
Rice	2240	34	22	67
Wheat	1568	56	24	67
Jowar	1792	56	15	146
Bajra	1120	36	22	66
Maize	2016	36	20	39
Barley	1120	41	20	35
Sugar cane	67200	90	17	202
Groundnut	1904	78	22	45

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"Handbook of agriculture" (1987) pp.213 Indian Council of Agricultural Research (ICAR)

To replenish such nutrients consumed by crops from the soil, cattle dung or organic manure, is the best, cheapest, harmless and most easily available manure. Now, let us have a look at nutrients contained in dung and urine of different animals which help in restoring fertility to the soil. The following table indicates the contents of some of the basic nutrients of dung manure.

Table 1.4 The average nutrient contents of manure

TYPE OF MANURE	% Nitrogen (N)	% Phosphoric acid (P2O5)	% Potash
Dung of cow/buffalo	0.3 -0.4	0.1 -0.2	0.1 -0.3
Horse dung	0.4 -0.5	0.3 -0.4	0.3 -0.4
Dung of sheep and goat	0.5 -0.7	0.4 -0.6	0.3 -1.0
Cow/buffalo urine	0.9 -1.2	NIL	0.5 -1.0
Horse urine	1.2 -1.5	NIL	1.3 -1.5
Sheep/goat urine	1.5 -1.7	NIL	1.8 -2.0
Dry compost manure	0.7 -2.0	0.9 -3. 0	1.0 -2. 0
Waste from stable cows/buffalos or horses	0.4 -1.5	0.3 -0.9	0.6 -1.9

"Handbook of Agriculture" (1987) pp. 215, Indian Council of Agricultural Research (ICAR)

Thus, if soil has to be prevented from becoming barren, it is necessary to apply 10 bullock-cart loads or 5 tonnes of dung manure for each acre of land. The remaining shortfall in maintaining fertility of soil is made up by dung and urine of sheep and goats which wander on farms everywhere. The Indian council of Agricultural Research has found by experiments that if the farms are properly ploughed and if 5 tonnes of dung manure is used for each acre, then our agricultural land is capable of giving the following yields of crops per acre:

TABLE 1.5: Yields of different food crops in soil enriched by optimum levels of bovine dung.

Food grain	yield (lbs)	yield (kg)
Rice	2000	900
Wheat	1400	630
Jowar	1600	720
Bajra	1000	450
Maize	1800	850
Barley	1000	450
Sugar cane	60000	27000
Groundnut	1700	765

Handbook of Agriculture (1969) (ICAR) pp.103

However, when sufficient natural manure is not available, the productivity of crops per acre get reduced as indicated by the following table.

TABLE 1.6- Yields of different food crops grown on soil with sub-optimum levels of cow dung inputs.

Food grain	yield (lbs)	yield (kgs)
Rice	962	433
Wheat	1277	575
Jowar	611	275
Bajra	380	152
Barley	833	375
Maize	862	338
Sugar cane	45000	20000
Groundnut	709	319

"India"- (1981) pp.201

Let us have a look at two other proofs, which indicate the importance of natural manure. In a book titled "Cow in India" by Dr. Satishchandra Dasgupta, on page 43 and 562 the following indication about utility of natural manure can be found. In three farms of equal sizes, the first farm was covered with 2 1/2 " thick layer of natural manure and was cultivated. In the second farm, the layer was only 1/2" thick and in the third farm, no natural manure was used. The results were as under:

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TABLE 1.7

YIELD	Rice (lbs)	Grass (bundles)
First farm	422	138
Second farm	236	106
Third farm	60	40

The above results make it clear that the yield in the first farm was 6 and 31/2 times greater for rice and grass compared to the third farm which was without any natural manure. In another example in the government dairy on Telan Kheri when cow and bullock dung were used as manure on the farm, the annual yield of crop increased significantly with this practice. (refer Table 1.8)

TABLE 1.8- Cumulative increase in yields of crop and grass grown on soil enriched by bovine dung.

YIELD YEAR	Grass (mounds)	Crop (mounds)
1932-33	12,595	219
1933-34	12,694	506
1934-35	18,028	350
1935-36	15,148	529
1936-37	18,272	634
1937-38	19,473	610

Report of Industrial Survey committee, Volume II

Is not the use of natural manure astonishing? In 6 years, food grain production went up by 178.5% and that of grass by 54.5%! Can chemical fertilizers do this without adversely affecting the capability and fertility of land? Why then are people burdened with huge capital expenses in setting up chemical fertilizer plants? Indian agriculture is burdened by more than Rs 1,500 crores as additional costs every year. The subsidy provided by government, of this additional burden is Rs 400 crores, which the government collects from people by way of taxes. The remaining Rs 1100 crores is recovered by the farmer by increasing the price of food grains. Thus, the poor population which consumes the food grains produced with use of chemical fertilizers, is crushed between the farmer on one hand, and government on the other. The high prices of food grains are the root cause of ever increasing inflation in our economy. (Note: The above figures of subsidy quoted by the author, though looked worrisome in the eighties, are peanuts compared to the subsidy burden in the nineties as indicated by following figures.)

TABLE 1.9- Subsidies provided in Central budget from 1990-91 to 1997-98
(Rs in crores)

Particulars	90 -91	91-92	92-93	93-94	94-95	95-96	96-97	97-98
1) Food and fertilizer Subsidies:								
Food	2450	2850	2800	5537	5100	5377	6066	7500
Indigenous (urea) fertilizer	3730	3500	4800	3800	4075	4300	4743	5240
Imported (urea) fertilizer	659	1300	996	762	1166	1935	1350	1950
Fertilizer subsidy to small and marginal farmers	0	385	0	0	0	0	0	0
Export promotion and market development	2742	1758	818	665	658	16	400	440
Sale of decontrolled fertilizer with concession to farmers	0	0	0	0	528	500	1674	2000
TOTAL	**9581**	**9793**	**9414**	**10764**	**11527**	**12128**	**14233**	**17130**
2) Debt Relief to Farmers	1052	1425	1500	500	341	0	0	0
3) Other subsidies:								
Railways	283	312	353	412	420	418	466	537
Mill made cloth	10	15	15	16	0	1	0	0
Handloom Cloth	185	187	161	174	148	143	98	84
Import/export of Sugar, Edible oils, etc.	0	0	0	0	0	100	50	50
Interests subsidies	379	316	113	113	76	34	1257	34
Assistance for fertilizer promotion	0	0	340	517	0	0	0	0
Other subsidies	218	205	99	186	420	481	590	416
TOTAL SUBSIDIES	**12158**	**12253**	**11995**	**12682**	**12932**	**13305**	**16694**	**18251**
Percentage of Food and fertilizer subsidy to total subsidy	79%	80%	78%	85%	89%	91%	85%	94%

Source: Rajya Sabha Unstarred question, 2270

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In view of this situation only, some time ago our (late) Prime Minister, Mrs. Indira Gandhi, during her broadcast, had advised our farmers to use compost fertilizers which is made by mixture of dung and urine of animals, their left over food in the form of roots of grass, the dead leaves of trees, etc. People must assert their rights to ask as to under whose direction and under whose pressure, the Government machinery and its bureaucrats are burdening the people with such unbearable and expensive cost of fertilizers.

MILLIONS OF HINDU AND MUSLIM FAMILIES PUSHED INTO UNEMPLOYMENT.

As a result of large scale slaughter of animals resulting in non-availability of dung, millions of Hindus and Muslims have lost their age-old profession.

The dung cake as well as the meat of the bullock are both commercial commodities. If one bullock is slaughtered, its meat (slaughtering activity) can sustain the butchers trade for only a day. For the next day's trade another bullock has to be slaughtered. But if the bullock is not slaughtered, about 5 to 6 thousand dung cakes can be made out of its dung per year, and by the sale of such dung cake, one person can be sustained for a whole year. If a bullock survives even for 5 years after becoming otherwise useless, it can provide employment to a person for 5 years. Whereas a butchered bullock can provide employment only for a day or two.

As confessed by the butchers in Gujarat, they slaughter 70 bullocks every day, which means approximately 25,000 bullocks in a year. Thus 25,000 poor women, whether Hindus or Muslims, surviving on sale of dung cakes, which would have been produced by these 25,000 bullocks, are deprived of their source of livelihood which can sustain them for years.

The entire Harijan community has become jobless as a result of the policy of animal slaughter and export of leather. This is so because the free availability of corpses of naturally deceased animals to them is now stopped. Now the living animals are slaughtered in the slaughter houses and the better quality of skin or leather is purchased by Corporate giants for manufacture of leather-ware or for export, whereas inferior quality of leather has to be purchased by the Harijan cobbler, after paying a price for it.

A builder in Bombay cannot build houses with mortar, i.e. mixture of cattle dung, clay and horse dung. Our masons in the city also cannot build such a house. Only the potters in the villages can build such a house. The potters used to build houses in villages using such mixture, and they also used to make roof tiles out of clay for such houses. In the present times, when houses are not made of dung and clay, there is no use for the roof tiles also, and thus the potter has lost his profession. With growing scarcity of dung, houses are no longer made of mixture of dung and clay and as a result, the vocation of making roof tiles connected with this system of housing has also started vanishing. As per government estimates, the shortfall of houses in the country is to the tune of 31,000,000 (according to "India:1993). The animal dung is the basic material to build houses in villages. If only potter families are engaged in construction of houses in villages, it will need 55 lakh potter families to build 3 crore houses. A similar number of potter families will be needed to make roof tiles, required in billions for covering such houses. Thus dung is the basis to providing an independent profession to about 3 crore potters in our country. However, with the disruption in availability of animal dung, lakhs of Hindu and Muslim potter families had to migrate to cities, and are now dumped as human scrap on the footpaths of large cities and towns. The potters have fundamental rights to pursue their own business or profession. As a result of lack of knowledge about their fundamental rights, they are unable to demand them in courts of law.

The above situations are just a few examples of how the Indian economy and its vast population has been adversely affected as a result of abandoning what is sarcastically described as "Dung Economy". In reality, the government machinery controlled by bureaucrats educated by western perspectives, working under the diktat of their foreign masters, have deprived the people of this country of their age-old professions by resorting to indiscriminate animal slaughter, and have thus pushed crores of Hindus and Muslims in the dungeon of unemployment and poverty. The government itself is to blame for the growing unemployment in our country. However, to avoid being blamed for this situation and to divert the attention of people from this criminal conspiracy, a cosmetic effort is made to provide employment to a few thousands, out of crores rendered unemployed, under various government sponsored schemes. None else but people themselves will have to rise to expose the government and draw public attention to the real situation so that the independent profession of crores of Hindu and Muslim brothers are restored.

Health of 12 crore women in peril!

The female population in our villages in the reproductive age group is 15 crores. They need utmost care at the time of giving birth to a child and immediately thereafter. For centuries, experienced midwives used to supervise and provide necessary care as per the principles of Ayurved to women in village's time of childbirth. Two basic aids for such a system of care were a massage of oil, and fomentation on fire lit with dung cakes. The midwives used to massage the woman and new born child for 40 days after delivery, with the help of oil and slow fomentation, with the help of heated dung cakes. However, now the dung cakes have become almost unavailable. Oil also is very costly and hence, poor women are unable to buy it. Thus, if the necessary aids for providing care during childbirth are not available, what is the use of persons providing such care? And thus, lakhs of Hindu and Muslim midwives have lost their centuries old, ancestral and at the same time, very useful profession. Thus, on one hand, conventional and cheap medical care, available to crores of poor women at the time of their childbirth is snatched away, and on the other, modern and costly medical care is either not available or beyond the reach of the needy. As a result of this situation, in the absence of proper and timely medical care, crores of women get afflicted by various diseases associated with childbirth, and live a painful life thereafter till death. It is surprising that various organizations and social workers who claim to be working for the welfare of women, or scholars in the field of Ayurved, or any women's organization have not uttered a single word against this criminal carelessness towards child and mother health or have never drawn attention to these problems! Western thinking and philosophy have limited the meaning of liberation of women, only to procuring liberties for women to indulge in shameless behavior, permissiveness and abortion.

Religious rights also snatched away:

In Hindu culture, there are 16 religious rituals (Sanskar) starting from birth (in fact there is one sanskar even before birth!) to death and none of these rituals can be performed without dung. It is essential to attain or provide purity to the mind, to the environment or surroundings, to the mental status and to the ingredients which are utilized at the time of performing any religious ritual. The place where the religious ritual is to be performed is cleaned and made pure by coating it with a layer of cow dung. A fire is often lit with dung cakes, sandalwood, gugal, etc to provide fragrance and cleanse the surrounding environment. It is not possible to do this on fire lit with kerosene or gas or electric stove. For purification of mind and heart while performing any religious ritual, one has to consume what is known as Pancha Gavya i.e. a mixture of cow milk, curd, ghee, dung and urine in defined ratios. The consumption of this mixture is believed to keep mind and heart pure and peaceful. As an automobile cannot be driven when its engine is very hot, similarly when the mind is not at peace, the religious ritual performed in such a state of mind does not give the desired result. For purification of body there was a practice to smear cow dung on the body and then take a bath. Purification of essential ingredients which are used for offering in the fire, is also necessary and one of the items is cow dung. With cow dung, small dry branches of certain specified trees and some other specified vegetation or herbs are also required. Till 1915, in the Indian Princely States where cow slaughter was banned, the pyre for consigning dead bodies to fire were lit with the help of dung cakes only. When dung cakes became scarce, this ritual was performed on wood fire. For burning an average dead body, four quintals of wood is required. With depletion of forests, even wood is scarcely available and wherever it is available, it is very costly. In view of this situation, in some of the villages now, a small bundle of burning grass is put on the face of the dead body and then it is buried. Thus the right of the Hindu population to perform even the last of the 16 rituals i.e. AGNI SANSKAR is snatched away. Of all the 16 religious rituals referred to earlier, starting from the birth of a human being, till his death, the AGNI SANSKAR is the last of these 16 rituals. It is a fundamental religious right of each Hindu. To protect this right, it is essential that the availability of dung cakes is increased at a very fast pace. When an adult bullock is slaughtered, it affects the Sanskar of 10 persons per year. If a bullock is allowed to live 10 more years beyond the age of its premature death by slaughter, it can provide dung cakes for Agni Sanskar of 100 human beings. If wood is forced (as it is now) to be used for Agni Sanskar in the absence of dung cakes, its cost would be Rs 15 lakhs per tree, as per the valuation done by scientists.

Value of Services Rendered by Trees- Lakhs of Rupees!

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According to a paper presented in the Indian Science Congress held in Varanasi in January 1981, the valuation of a 15 year old tree at rates prevailing at that time was Rs 15.7 lakhs. The bifurcation of this value was arrived at as under:

TABLE 1.10 - Value of a single tree.

	Rs.
Oxygen	250000
Control of air pollution	500000
Retention of fertility of soil	250000
Contribution towards recycling of water and controlling humidity	300000
Provision for shelter to birds and animals	250000
Protein	20000
TOTAL	**1570000**

The above estimates do not include the value of fruits and flowers yielded by the tree or the value of its timber when it dies its natural death. The above information was given by Prof. T.M. Das of Calcutta Agriculture university while delivering his address as chairman of the Indian Science Congress, deliberating on the subject of "Plant and Pollution". This has been reported by Times of India in its 5th January, 1981 issue on page 5.

Destruction or Scarcity of Herbal Medicines Means End of Ayurvedic Medical Care for Poor Indian Population

With non availability of dung, our forests also get destroyed and with the destruction of forests, many ayurvedic herbal medicines also became either extinct or scarce. How many people can be treated with the costly Bhasma (oxides of various minerals like Gold, Copper, pearls etc.) and how many patients can afford such Bhasma? On the other hand, medicines under Allopathic system are also very costly and beyond the reach of poor people, and thus a vast majority of poor people living in Indian villages, carry on with illness for life, without any treatment. Herbal medicines are the basis of Ayurvedic system of medicines. Similarly, Bhasmas are also the basis of the system. These Bhasmas must be prepared on fire lit with the help of dung cakes only. If coal or electricity is used to make the Bhasmas, then it will be like running an automobile with kerosene instead of petrol. What happens to an automobile engine if kerosene is used, will also happen to the Bhasmas and the patients who consume such Bhasmas. Many medicines have to be purified before their use and such purification can be done only with the help of dung. In different branches of Ayurved, paks are made of different medicines, and these paks must also be made on the slow burning dung cake fire only. Nowadays, because they are made on other types of fire, they do not yield the desired results and hence people have started losing faith in Ayurved. Thus, by stopping the flow of dung and dung cakes to the Ayurvedic system, the government has dealt a death blow to the system and yet they are not tired of talking about providing encouragement to Ayurved! This is nothing but cheating, and unfortunately the scholars of Ayurved seem to be enjoying this act of cheating on the part of the government. How could scholars of Ayurved tolerate this state of affairs, when an age old ancient system is put into such peril. On the one hand they talk of encouraging Ayurved, and on the other, there is destruction of the most essential aspects of Ayurved i.e. herbal medicines, cow's milk and cow's ghee, dung and dung cakes. The duplicity of government policy can be seen from such an occurrence. If we have to prevent Ayurved from dying; the oldest of the medical systems, which is well accepted and which has withstood all the challenges to its principles of diagnosis, treatment etc. for centuries; then it is essential that the government be challenged, its duplicity exposed and it be forced to increase dung cake availability in the interest of this great medical science. If Ayurved as a science eventually dies, it will be due to inaction and timidity and the urge of Ayurvedic scholars to indulge in false flattery of the government machinery.

Cheap Fuel Has Also Become Costly

Abundant food grains may be cultivated, but what if there is no fuel to cook the food? We cannot eat raw food grains, and for cooking, fuel is necessary. The cheapest and most easily available fuel are dung cakes. It can be available wherever needed. Its flow is unending. Till the time our country had not resorted to animal slaughter, the rural population used to get free dung cakes for fuel. The affluent who used to buy dung cakes had to spend only Rs 3 to 5 in a year. Now people have to use kerosene, which has to be imported from countries which are exploiting to great advantage, the folly of our planners. When Nadirshah came to loot India, he had to cross the Indian border and he also had to fight a fierce battle. Despite this, what he looted from this country and took away with him, was just a drop out of the ocean of the wealth of this nation. Today, the successors of Nadirshah have stormed into the kitchen of every household of our villages with the help of a can of kerosene. They can exploit us at at their free will, by increasing the price of kerosene as and when they feel like. They can cut short the supply of kerosene at their will and force us to either eat raw food or to starve or to surrender to the countries who are their allies and who are unfriendly to us. This should make it very clear how valuable is the contribution of even a bullock in the field of fuel, and how the sovereignty and security of the nation is connected with it. Gas and kerosene, once used, are lost forever, and they are not renewable sources of energy. The day their availability becomes extinct, it will lead to starvation. Their prices keep on increasing with their increased use and in addition, they create pollution. With the compulsion to use alternative fuels like kerosene and gas in place of dung cakes, each family has been burdened with an additional annual expense of Rs -1500/ Is it not wiser to save this Rs 1500 by reverting back to dung cakes as fuel? There will be an additional saving of about Rs 75/ per annum for a family which is spent on washing powders, as the ash of dung cakes which will be freely available can serve the same purpose. This saving can be used to provide food, clothing and education to millions of children, and can be utilized for such other noble purposes. Potential value of dung as fuel would be clear from the following small calculation India has a population of about 96 crores; 70% of this population i.e. 67 crore people live in rural areas. Considering 5 persons to a family, it means 13.4 families. Dung fuel if available, can be used by these rural families as was being done only a few decades ago. Due to the non-availability of dung cakes for fuel, other types of fuel are used. For valuation purpose, let us take the value of LPG to assess the fuel cost. The LPG cylinder is on an average priced at Rs 150/ and for a family of 5, one cylinder lasts for about a month. Thus each family has to spend Rs 1800 per annum on cooking fuel. Thus for 13.4 crore families, the fuel cost comes to 13.4 crore x Rs 1800- i.e. Rs 24,120 crore.. Thus theoretically speaking, if the entire rural population reverts to dung cake fuel it will save the nation a whopping burden of Rs 24,120 p.a. which is spent on one or the other form of fuel today. This is the unlimited potential of dung in its utility as fuel.

Effects of Animal Slaughter on Forests vis-à-vis Fuel Shortage.

After independence, the availability of dung cakes reduced drastically. This forced people to use firewood as fuel. The ratio of firewood to food grain price doubled between 1975-85 which made cutting wood for sale economically attractive. Neglect of people's need for cheap and local fuel has made cutting wood for firewood a lucrative trade. A world Bank report quoting figures from the Food and Agriculture Organization (FAO) states that the total extraction of wood in India was 264 million cubic meters in 1988, of which 240 million cubic meters was for fuel. Of the total wood consumed in the country, 90% is for fuel. The remaining 10% comprises timber, pulp-wood and poles.

TABLE 1.11 shows source-wise energy consumption in householder sector

No.	Energy	% share of energy forms (Rural)	% share of energy forms (Urban)
1.	Electricity	0.6	5.9
2.	Oil Products	16.9	30.2
3.	Coal Products	2.3	13.7
4.	Firewood	68.5	45.5
5.	Animal Dung	8.3	3.2
6.	Others	3.4	1.5

(Ref. A report of Working Group on Energy Policy 1979 (adapted in the Report of Firewood study

Committee appointed by Planning Commission Pub. by CMIE June 1982 Page6)

The Report of Firewood study committee appointed by the Planning Commission in 1981-82 states that "if the present trend continues, the fuel required to cook the food, rather than the food to cook, may pose the greater challenge". According to Dr. Kushoo, an eminent Indian environmentalist, at the current rate of depletion of firewood, 250 million people in the year 2,000 will not be able to cook their food, let alone meet the energy needs. The annual requirement of fuel wood in India by the year 2,000 is estimated to be 200 million tonnes. The shortfall has been estimated to be about 137 tonnes. (Ref: Business Standard, 28 November, 1992) At the Central Board of Ministry of Forest and Environment meeting presided over by the late Prime Minister Shri Rajiv Gandhi, the shortfall of fuel wood was estimated to be around 100 million tons. In order to put further restriction on forest cutting, the government decided to import about 125 million tons of firewood, which would cost Rs. 4,000 crores. The following table shows time taken and distance traveled by villagers for firewood in different regions:

TABLE 1.12 Firewood Collection

Region	Year	Time Taken	Distance Travelled	Source
1.Chamoli (hills)	1982	5 hr/day	over 5 km	Swaminathan (1982)
(a) Dwing		average		
(b) Pakhi		4 hr/day		
2. Gujarat (Plains)	1980			Nagbrahman & Sambrani (1983)
(a) Forested		Once every 4 days	n.a.	
(b) Depleted		Once every 2 days	4.5. Km	
(c) Severely depleted		4.5 hr/day	n.a.	
3. Madhya Pradesh (Plains)	1980	12 times/week	5 km	Chanand bosbourah (1980)
4. Kumaon (hills)	1982	3 days/week	5.7 km	Fogler and Dewan (1983)
5. Karnataka (Plains)	n.a.	1 hr/day	5.4 km	Batliwala (1983)
6. Garhwal (hills)	n.a.	5hr/day	10 km	Aggarwal (1983)

Ref: Business Standard dated 2-4-1989)

Cooking and heating requirement of a villager having a family of 5 members, has been calculated to be around 1.25 million Kcal/year. About 20% of this requirement could be met from vegetative waste. Fuel wood would be needed to meet the remaining 80% . As such, 1125 kg of fuel wood would be required by a family annually. A tree of 5 years of age will yield between 100 to 125 kg of fuel wood approximately i.e. 10 trees of around 5 years of age will have to be cut to meet the fuel requirements of one family. (Ref. Report of the Firewood Study Committee appointed by Planning Commission, June 1982- pp. 27) To make up the gap between demand and supply of firewood, 34 million hectares of land area is required to be planted with fuel wood crops during the next decade, requiring an outlay of Rs. 34,000 crores. According to "Indian Forester, July, 1978" firewood has a heating value of 4708 Kcal/kg and dry dung cake has a heating value of 2092 Kcal/kg. As explained earlier, a tree of 5 years of age will yield 100 to 125 kg of firewood. Dung available from a large animal (cow/bullock/buffalo) will be 5.0 tonnes p.a. Therefore, dry dung available will be 5.4 tonnes x .3 = 1620 kg/annum, which is equivalent to 712.8 kg of wood. Therefore one large animal, if kept alive, saves 6 trees every year. (Report of Firewood study Committee, June 1982 Page 13 and Letter from Punjabrao Krishi Vidyapeeth, Akola, dated 16-4-93) The destruction of forests for firewood will not stop as long as natural sources of energy from non-wood sources is not made available to villages at their doorsteps. In this situation, it is necessary to increase the supply of cattle (i.e. cow and buffalo) dung cakes to be used as fuel. Dung cake obtained from one cattle is sufficient for a family for a year. Dung cakes are generated within 24 hours only. There are several economic, social and environmental advantages from using dung cakes, because of which it deserves to be considered an ideal energy source. Dung cakes as renewable and safe energy source deserves due recognition. In absence of LPG or kerosene, villagers cut trees for their daily firewood requirement. Since dung of one large animal per annum is equivalent to fuel of 6 trees, crores of trees can be saved by stopping slaughter of animals. India's poverty is closely linked with its increasing deforestation and land degradation. As much as half of the 329 million hectares is considered degraded in one form or another. Satellite imagery in the seventies and eighties, revealed that forests were losing tree cover at the staggering rate of 1.3 million hectares every year. Of 75 million hectares of forest under forest management, 40 million hectares are now without tree cover. The existing plant cover is only about 12% as compared to the ideal of 33%. The area under forest in India is half of what it was 50 years ago. The widening gap between demand and supply of fuel wood is the main cause of fast depletion of forest cover, which in turn has proved to be ecologically disastrous, as denudation leads to soil erosion, floods, shortage of water, loss of food grain production, and destruction of rural economy. (Ref. The Hindu Survey of Indian Environment, 1992 pp 31-37).

Oh! Even Ash, also is not available!

How would you evaluate the value of ash of dung cakes? This ash can save us from the slavery of World Bank! It may not be possible to assign any price in monetary terms to the ash which is left over after cooking on the dung cakes. However, it is very precious. This ash is very, very useful in preservation of food grains. In olden days, the kings used to preserve jowar for their subjects for use during drought year. For preserving jowar to last for years, ash of equal weight was mixed with jowar, and it then could be stored in this way for 12 years without any damage. Even in normal; course people could store food grains for 2 to 3 years in their storage tanks made of clay in each household, by mixing cow dung ash in food grains. Today, due to non-availability of ash, people have forgotten its use. Now we borrow millions of dollars from World Bank for construction of air-conditioned warehouses for storing food grains. Now we resort to spraying of poisonous pesticides on food grains for their preservation, which adversely affects health of people. The World Bank and the multinational pharmaceutical companies are taking advantage of scarcity of dung and dung cakes. An old bullock may not be able to work in the farm or to pull weight, but it is capable of giving dung till its death, and this dung can keep us free from inflation, free from disease and also preserve the sovereignty and integrity of the nation.

Another Important Use of Ash

Cleaning of utensils is one of the routine and essential household chores. For centuries, the cleaning of utensils was done with the help of ash of dung cakes. Now, instead of dung cake, washing powder or other detergent has to be used. The expenses on this head comes to about Rs 75 to Rs 100 per annum per family. What was inexpensive or totally free, now costs crores of rupees for the society as a whole, and the families in the middle class are the worst affected. The middle class families have to curtail their other expenses to meet this expense and the curtailment is either in their food expenses, education or medical expenses. In 1960, an issue was raised in the Supreme Court, that when the nation is spending just Rs 5 per head on education, how was it worthwhile to spend Rs 19 to maintain an old animal. (The argument was presumably to justify animal slaughter) The issue today, is that if we are unable to spend Rs 25 per head on education, is it worthwhile to spend Rs 75 to Rs 100 on an activity like cleaning of utensils? Is it not worthwhile to save this 100 rupees, and spend them on education, by reverting to dung ash as means to clean utensils.

Closure of Schools Imparting Experience-based Knowledge

In villages during winter, people used to make bonfire of dung cakes at night and sit around it talking. The youth helped elderly persons who were suffering from arthritis related problems, by providing them fomentation from fire, and the elderly people used to talk about their own experiences in life, the family traditions, the social customs, the history of the village and thus pass on the rich experience and knowledge to succeeding generations. The local poets used to sing our ancient epics like Ramayana and Mahabharata and thus kept alive the flow of culture in our society. In the absence of dung cakes, these village square assemblies had to discontinue, and thus the young generation was deprived of the flow of knowledge and real history. With the closure of such village square centers, the younger generation diverted itself and drifted to gambling dens and hooch shops. One single animal, be it a cow, bullock or sheep, is much more valuable to the society compared to even a hospital or a college. This is so because the cattle dung creates conditions as described earlier which inculcate into the people the qualities of nursing, organization, social service, passing on knowledge of real history, maintenance and development of religions, social and family feelings and preventing youths from drifting away to gambling dens and hooch.

Destruction of Forests, Wildlife and Vegetation.

With disruption of dung availability, our rich forests also got destroyed. Thousands of full grown giant trees which were destroyed, would value crores and crores of rupees at today's prices. If the dung and dung cakes can preserve and protect these invaluable assets worth crores and crores of rupees, the dung itself can be considered to be worth crores and the value of the animals who provide such dung is naturally much more! It might serve the interest of a few butchers if animals are allowed to be slaughtered, but in preventing such slaughter, the nation would save assets worth crores of rupees and the religion and culture of the entire nation. With the depletion of forests, scarcity of water set in. With scarcity of water, many vegetarian animals such as deer and rabbits died due to thirst. With their death, animals like tigers, panthers, etc. who used to survive on smaller animals, also died due to hunger. Thus, with the gradual depletion of the wildlife, the manure which was available in the forests in the form of their dung and urine, also stopped becoming available. With slaughter of goats and sheep who wander in the forests, the manure in the form of their droppings and urine also became unavailable. Thus, many herbal medicines which used to grow naturally in the forests, also became extinct or became scarce, and lost the effectiveness of their medicinal properties.

Villages Also Fell Prey to Liquor Addiction

Most of the widely prevalent diseases in villages are due to cold and imbalanced elements in the human body (known as VAYU) as also due to various injuries arising out of accidents. In all such diseases, a major therapeutic procedure was fomentation by the dung cake fire. The hot water bag fomentation is not available in villages for prevention from cold, cold related diseases and as protection against severe cold climate. The only way for protection from this was the fire of dung cakes and when this was snatched away, people turned to liquor. They started applying liquor on the body for heat and also started consuming liquor, thus pushing up the demand for liquor, and also increased the number of liquor manufacturers and addicts.

Scarcity of Houses Increased

With non-availability of dung, the scarcity of houses in villages is more than 3 crores. All the cement plants of the country together cannot meet this scarcity. The easiest way out is to increase the availability of cattle dung.

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Value of Dung

What is the value of cattle dung? Does this question still need an answer? The value of dung is much more than even the famous Kohinoor diamond. "How is it viable to maintain an old bullock which consumes grass of Rs 700 in a year and in return gives dung and urine worth only Rs 500 ? How absurd, unscientific and hollow this argument is, is clear from what is described below. The market price for any commodity can be manipulated (i.e. increased or decreased) by speculation and hoarding, by administrative measures, or by similar calculated action. But this cannot alter its value. Grass can be priced as Rs 1 per kg or Rs 5 per kg also. But its value as the means to help animals to survive, to feed them and to give them strength cannot be altered. The stalk of food grain plants which becomes useless after removal of food grains from it, is the food for animals. When this useless stalk is returned by animals in the form of their dung, its value is astonishing. Even an old bullock gives 5 tons of dung and 3,443 pounds of urine in a year, which can help in the manufacture of 20 cart loads of compost manure. For cultivating jowar and bajra on dry land, 5 carts of compost manure is required for each acre. Thus, the compost manure provided by one single old bullock can meet the manure need for 4 acres of land. On irrigated land with the help of such manure, about 2,800 to 3,600 kg of bajra can be grown on 4 acres of land and where irrigation facility is not available, the yield can be about 1,500 to 1,600 kg. This can feed about 10 to 12 human beings throughout a year. Thus there is a wide difference between concepts of price and value. Whether the food grain is priced at Rs 1 per 10 kg or Rs 10 per 1 kg, it does not affect the intrinsic value of the food grains. Its value lies in the utility of providing nutrition and life to human beings. The right to life is a fundamental right and it can be basically protected only with proper food and feeding and the cheap and nutritious food grains required for feeding can be grown with the help of dung. Thus, the most fundamental thing to the fundamental right of living for the human beings is bovine dung. It is absolutely foolish to evaluate this function of dung in monetary terms. A servant employed by us, has to be paid wages for his labor. He demands wage rise, he also demands bonus, he resorts to strike if bonus is less than his expectation, and also abuses the employer. But our servants in the form of these dumb cattle do not demand any wages from us, do not demand any wage rise or bonus. They survive on whatever we offer them to feed, and in return even favor us with a bonus in the form of most valuable dung. And still we are after the blood, meat, hides and skin of such animals and for that we slaughter them alive. We do not wait till they die their natural death to get their hides and skin.

Need for Dung

For land under cultivation it is necessary to use 5 tons i.e. 10 cart loads of dung manure per acre. If less manure is used, the soil becomes weaker, gradually loses its fertility and becomes barren over a period of time. At this rate, 43,07,50,000 acres of cultivable land in our country will need 215,37,50,000 tonnes of dung manure. An adult cattle on an average gives 4 tonnes of dung and 3,343 pounds of urine. A cattle less than 3 years of age would yield half this quantity. (Source: Cow in India Page 374 by Dr. Satishchandra Dasgupta quoting Dr. P.E. Lender who was an agricultural chemist of the Government of Punjab during British Regime) Our cattle population is as under:

TABLE 1.13 Domestic Ruminant population in the country (in '000's)

सत्यमेव जयते

Bulls and bullocks over 3 years of age	74,460
Cows 3 years and above	6,400
Calves less than 3 years	47,480
TOTAL COW FAMILY	**1,78,340**
Buffaloes and calves	57,430
Sheep	39,990
Goats	67,520
TOTAL ANIMALS	**3,43,280**

Thus, the total population of various types of the above animals is 34.33 crores. The advocates of cow slaughter are making propaganda in the country and abroad that the cow population alone is 34 crores, and thus cheat the people and make them believe that slaughter of cows is necessary to keep in check their population. In fact, the number of calves should be at least 2 to 2 1/2 times more than the number of cows. However, in our country the number of calves is much less than the number of cows, because under the guise of killing old bullocks, more calves are slaughtered for their soft and tender skin. Of the above animal population, only 16.82 crores of animals are adult animals (i.e. above 3 years of age). Animals of less than 3 years of age are 6.76 crores, and the number of sheep and goats is 10.75 crores. Let us now consider the dung yield of the above animal population.

16,81,70,000 adult animals at 4 tonnes p.a	62,26,80,000
6,76,00,000 calves at 2 tonnes p.a.	13,52,00,000
10,75,10,000 goats and sheep at 1/2 tonne p.a.	5,37,10,000
TOTAL	**86,15,90,000**

(Source: Indian Agriculture in Brief, 18th edition by Agriculture Department of Central Government)

As we have seen above, for manure alone we need 215.37 crore tons of dung per annum. As against this, the dung production is only 86.16 crore tons. Thus, for agricultural need alone, the annual scarcity of dung is 129 crore tonnes. Besides this, we need 124.36 crore tonnes of dung to meet the needs for fuel, housing, preservation of food grains, repair of houses and for cleaning utensils etc. Thus, as against our annual requirement of 340 crore tonnes of dung, the availability is only 86 crore tonnes, which is just 40% of the requirement for dung alone. It is regrettable that out of the Six Planning Commissions so far, none has taken note of the colossal scarcity of bullocks for agriculture. If animal slaughter is totally banned by legislation and is implemented with strictness and honesty, then only will it be possible to meet this gigantic scarcity of dung manure.

Conclusion

From what has been explained above, the readers will now realize that cutting short the source of dung, has engulfed the entire nation, economically, intellectually, and physically, irrespective of any distinction as to the caste, creed, religion or region. Dung is such an invaluable commodity, that not a single individual of the country can remain immune from the effects of its scarcity, whether such a person is very affluent or poor, whether he is Hindu, Muslim, Parsi or Christian. The scarcity of dung is eating away universally everyone without any distinction. Dung economy was the most scientific economic system evolved by the great Aryan race. Unless we accept this, our future will become more and more gory. We urgently need our dung culture and its restoration to the predominant place where it belongs. This is not possible unless a total ban on animal slaughter is imposed. But unfortunately, the government of our country is bent on converting the cultured and civilized population of this great nation, into herds of wild human beings. The religious heads on whom lies the responsibility of preserving the culture and civilization of the population must rise from their deep sleep.

ANNEX V – II (7)

Paragraph 15.1

Down-loaded from http://www.iscowp.com/resources/seccow.html

THE SECULAR COW ECONOMY

DEDICATED TO
MATWAS & MALDHARIS
(MUSLIM COWHERDS & HINDU COWHERDS)

For their tenacious maintenance of superior cow breeds in the teeth of Government onslaught, hinderances & handicaps during last 100 years.

WRITTEN BY:

LATE SHRI VENISHANKAR M. VASU

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ABOUT THE THESIS....

This thesis attempts to bring out the most important phase of the basic Indian economy thrown overboard in its stride by the frenzied industrial tempo. Let me state clearly that I am not against industry but most emphatically insist that all industrial development must be in consonance and in conformity with the herein discussed basic Indian economy. Industry should support and not distort this basic cow economy of the country.

V.M. Vasu

Chapter 1 - Introduction
Chapter 2 - Farming
Chapter 3 - Transport
Chapter 4 - Nourishment
Chapter 5 - Fuel
Chapter 6 - Housing
Chapter 7 - Fodder
Chapter 8 - Defence
Chapter 9 – Effects (not yet available)
Chapter 10 – Answer (not yet available)

THE SECULAR COW ECONOMY

CHAPTER 1 - INTRODUCTION

The recent anti-cow-slaughter agitation has aroused a worldwide interest inspite of the fact that both the agitator and the other side have, either from ignorance or on purpose, nearly ignored the most important aspect of the cow-issue, namely, its economy woven in the Indian life through centuries and centuries. Even the Muslim rulers of India. from Babar downwards accepted that the basic fibre of the Indian Economy is woven around the cow to the extent that even reportedly anti-Hindu Aurangzeb did not ado the cow-slaughter ban confirmed from time to time by Babar, Akbar and other Emperors.

The cow is the foundation of one of the greatest economies in the world. It is forgotten that the Hindu Religion, the Hindu Culture and the Indian Life are woven around the cow, and in consequence protagonists of cow-slaughter ban are dubbed religious fanatics, communalists and reactionaries by the foreign and the Indian vested interests whose vigorous propaganda has created an atmosphere of scepticism in the country, clouding the real issue. And yet the stormy scenes witnessed in New Delhi on 7th November, 1966 and the fasts of the Jagatguru Shankaracharya have aroused considerable interest in the world. A truthful picture of the issue may help those interested but the aim here is to bring the truth to the notice of the leadership of the country who should with a free mind study and consider the full implications of the issue discussed. Also the notice of the youths of the day is sought to be attracted to this basic factor of the Indian life for it is these youths and their progeny who will have to face the disaster envisaged on account of the cow slaughter.

Here it should be noted that the agitation for cow slaughter ban was not an election stunt; in fact a complete cow slaughter ban has been advocated from earlier periods of the British Rule as far back as 1857. Late Sheth Shri Goculdas, the pioneer of the famous house of Morarji Goculdas appealed to the British Government to enforce a cow slaughter ban. His son Sheth Morarji Goculdas did plan to go to England and agitate for the cow slaughter ban but unfortunately his early death foiled the plan. Thereafter his son, Sheth Narottam Morarji undertook his father's mission and did present a case to the British Government in London. And throughout in the subsequent years this demand has persisted through different persons and institutions all over the country. Shree Jivadaya Mandli of Bombay has always worked for the implementation of the cow slaughter ban and its Hon. Secretary Shri Jayantilal Mankar has devoted his life to this cause.

To appreciate in full all the aspects of the issue, we have to go deep into the past. Here one point in respect of Hinduism needs be borne in mind, namely, that Hinduism as a religion is perhaps the most practical and earth-bound, i.e. material religion so far as material life is concerned as it is highly idealistic in respect of spiritual aspects. For centuries downwards our country's economy is cow based, carrying on farming and transport with bullocks. and obtaining nourishing food from cow. So old thinkers placed the cow on a high religious pedestal to provide adequate protection to the cow and thereby to the economy This Essay attempts to bring to the notice of the people the basic facts of the cow economy which has so far been disregarded.

The total area of our country is 32.6 crore hectares having East to West distance of 2977 km. and North to South span of 3219 km. A population of nearly 50 crores is spread over this vast area. Of this 82% Is in 666878 villages, nearly half of these villages having less than 500 persons. And of course It Is this rural area that does the farming and so supports the cow. In the centuries-old cow economy of this country, nearly all basic necessities of life were woven around the pivotal cow. These are:

1) Farming and manure
2) Food and nourishment
3) Transport
4) Fuel
5) Housing and

6) Medicinal usage.

CHAPTER 2 - FARMING

The bullock pulls the plough, manures the land by its dung, and feeds itself on the left over stalks of the cereal crops which man consumes.

We have nearly 40 crore acres under the crop. To switch this area over to mechanised farming, we shall need five million tractors against which we have today only a meagre 31000. To make these tractors we will need 30 mm. tons of steel and our annual production of steel is 4.5 min. tons. And as we have during the last 20 years made 12000 locomotives, 0.6 min. trucks and automobiles, what a long span of time shall we need to make the needed five million tractors? even if we make these alone? And from where the capital estimated to be Rs. 14000 crores has to be raised. The annual depreciation of Rs. 1400 crores apart from the required spare parts (capital and steel for these) and the astronomical diesel consumption needs to be accounted for to get the complete picture of the Tractor Farming Fantasy. Instead of bringing about this situation by continuous cow-slaughter, would it not be more advisable, economic and in the national interest to export steel and to earn foreign exchange?

The problem of farming does not solve itself by employing 5 ml. tractors at the cost afore-estimated. No cow, no manure. So we shall need to make fertilizers. Our annual needs would be .40 min. tons (against our fourth Plan target of 1.6 min. tons) of different fertilizers. Please add the capital and other investments to the tractor production. Of course the fertilisers will have to be transported all over the country and in given time. Our vast country of 566878 villages has 6800 railway stations, 58300 km. of railway, 23818 km. of high ways and 283680 km. of surfaced roads with 219933 trucks to ply over the roads How are we going to make up for the transport of the fertilisers in proper seasonal time? Obviously, the effort will involve further, capital investments, further steel consumption and so on. Go on adding these to the tractor production programme.

The socialistic policies of the Government and its capitalistic execution have brought about a monopolised capital accumulation and though negligible in comparison with the country's demand, the production of tractors and fertilisers and its many fangled branches have proved only to be in the interest of that small monopolist group controlling the country's capital and economy but at the vast cost of the country as we should see. Cow-slaughter serves the interests of this small group only. If we destroy our cattle wealth even God will not be able to save the country. Let us see.

To plough our 400 mln. acres of land we have 406,70,000 traditional ploughs and for these we have 73 bullocks. Counting a pair per plough we need 81.3 mln. bullocks. Therefore it is clear that we have a much smaller number of bullocks than required for farming alone. But surely a very large number is employed in transport and other work, thus even as it is we are very short of bullock availability for ploughing Many of us have been men and women pulling a plough in our fields. The position is quite apparent that our land is not fully utilised on account of shortage of bullocks and this fact reflects in our food shortage.

To meet this food shortage, the Government have built many dams. More than Rs. 15000 crores have been spent on these dams (I do not say invested for this has proved only to be expenditure and without any tangible benefit to the nation except power to the benefit of the aforesaid capitalist monopoly) but there has been reduction in food production instead of the promised increase.

In this situation we have to decide whether we should invite national destitution by slaughtering the cow or promote prosperity by improvement and increase of cattle.

To maintain high fertility of our soil and to meet our other requirements of health, transport fuel, etc., we need 630 mln. cattle as against our present wealth of only 170 mln. heads and it is this cattle shortage that lies at the root of our famine conditions, shortage, unemployment, rural exodus, daily rising costs and under-nourished health.

Let us see how cow slaughter has contributed to our spiraling costs and unemployment. Unlimited slaughter of cattle and imported economic policies of the Government have brought about a steep price rise as can be seen from the table A.

TABLE - A

	IN THE YEAR					
Price of	**1900**	**1920**	**1940**	**1960**	**1967**	**1987**
Cow	Rs.3	Rs.10	Rs.20	Rs.200	Rs.500-1200	Rs.1500-2500
Bullock	Rs.5	Rs.12	Rs.25	Rs..500-1000	Rs. 1000-1500	Rs.2000-5000
Goat	As.4	As.6	Re.1	Rs.75	Rs.120-150	Rs.500-1000
Kadab per Md.	As.4	Re.1	Rs2	Rs.6-10	Rs.15-20	Rs.20-40
Grass 1000 lb.	—	Rs.3	Rs.6	Rs.45-85	Rs.125-185	Rs.200-500
Cotton sed Md.	As.4	As.8	Re.1	Rs.15	Rs.20-25	Rs.100-300
Bajri Md.	As.6	Re.1	Rs.1.50	Rs.14	Rs.24	Rs.200-300
Wheat Md.	As.8	Rs.150	Rs.2	Rs 15	Rs.20-40	Rs.80-160
GhecMd.	Rs.12	Rs.15	Rs.30	Rs.100	Rs.300-350	Rs.2600-4000
Edible Oil Md.	—	Rs.2.50	Rs.3.50	Rs.30	Rs.100-120	Rs.1000-1500
Milk lb	As.0.25	As.1	As.2	As.8	As.12	Rs.2-4

The above figures show that during the 20 years of our Independence the price rise has been 20 to 160 times as compared with the latter 40 years of the British Rule. As the tempo of the cattle slaughter increased, shortage of manure and bullocks resulted in diminishing food production. Milk and ghee production went on reducing and prices started galloping.

The price rise in the cost of cattle during the period 1940 to 1967 exposes clearly the alarming acceleration of cattle slaughter. Cattle is neither a hoarding nor a speculative commodity so that artificial price rise can be manipulated. It is simply a case of lower supply against higher demand. And yet foreign experts and their indigenous disciples advise us that our agriculture Is deteriorated and production reduced on account of excess of cattle population and therefore the cattle needs to be slaughtered. The American Bell Commission have advised that all our food and nourishment problems are due to excess number of cows, that India's greatest problem is that she has no adequate machinery to slaughter cows more than 30000 a day; that India should slaughter about 200000 cows per day and earn foreign exchange by billions and start new industries.

And U.S.A. Is very anxious to help to supply modern machinery to slaughter these two lakh cows per day and unburden us of the cow liability. This foreign and the indigenous experts and their advices smack of vested interests and pose the greatest danger to the nation, an unprecedented one, directed to create complete dependence on the foreign food supply.

On account of the bullock and the manure shortage, our food production per acre Is diminished by stages on one hand and on the other hand, because of the ghee and milk shortage cereal consumption increased. The Imbalance between consumption and supply thus created. resulted In higher and higher prices. An accepted principle of economy is that when food prices rise all other things and commodities start up the price ladder. It is argued that our population increase is the cause of the price rise, but it is not correct. If population increase is 50% than land under cereal production is increased by 100% which should mean more and cheaper food supply and if there is no export; surely the imports would not become necessary. Our foodgrain imports are multiplying every year Last twenty years have seen this increase by 1000 per cent and yet different parts of the country are falling in the clutches of famine and price of food grain and on its account of other commodities are rising In tidal waves, In reality the doom of our agriculture is solely on account of our reckless slaughter of the cattle wealth.

Our Ministers and industrialists falsely daydream that our agriculture can take huge strides by establishing scientific fertilizer plants. Our 400 min. acres under agriculture will need (every season) 40 mln. tons of fertiliser. To produce these 40 mln. tons of fertiiisers annually, how many billions of rupees will be needed? One fertiliser factory established in 1946 with a capital of As. 7 crores is manufacturing about 2,75.000 tons of fertilizers annually. On this basis, capital requirements to meet our 40 mln. tons needs may be estimated. Further, the use of these fertiliser costs Rs. 90.00 per acre while the food grain produce attained is only 15 mds. meaning an additional expense of As. 6.00 per md. of foodgrain. And by these fertilisers the agriculture is extra-burdened by As. 36,000 min. Can the farmer bear the burden?

And though in the final stage, the burden is passed on to the consumer from where would the farmer produce this fantastic amount even before crop is sown? A further danger to this Impracticable fertilizer idea is its monopoly either in the hands of few foreign and indigenous capitalists or in the hands of the State Governments. Apart from all these, the fact remains that in spite of all the scientific fertilisers, manure is indispensable. Manure is needed to obtain effects of fertilisers. Ten cartloads of manure per acre has to be used prior to the use of the fertilisers. Therefore even taking for granted that all problems in respect of the production and distribution of the scientific fertilisers are solved and these are delivered at the door of the farmers in the desired time, the fact remains that if manure is not available, the entire labour is lost and the fertilizer remains useless.

So it will be seen that if being misguided on advice of the foreign and the indigenous vested interests, we slaughter our cows treating them unproductive (American Bell Commission advises slaughter of the 80% cows) we shall left without manure and all our investments and labour for fertiliser manufacture will be in vain. The country will for centuries not come out of the most unhappy and disastrous era. Further the use of scientific fertilisers needs increased use of water. We cannot provide this. Even after spending As. 1,500 crore on dams, 26% of our population semi-starves for water. On what basis then can we expect to provide the additional water supply to our 400 min. acres necessitated on account of the use of the fertilisers? There are many instances where adequate use only of manure and well ploughed land and no scientific fertilisers at all have yielded 50 to 70 mds. of grain in our country while scientifically advanced countries like America and Russia with fertiliser are not getting more than 15 md yield per acre though we hear loud praises about over abundance of their crops. Does it stand to sanity and justice that we should sink billions in fertiliser plants; burden our lank transport by further 14% and load agriculture with Rs.3600 crores of added cost solely because we are advised that the cow is unproductive and so be slaughtered. instead of going into all this unending labyrinth of problems; why not feed the so-called unproductive cow at a negligible - completely indigenous cot and in return receive milk, ghee, manure and bullocks, even of negligible value. This way seems more sane and in the interests of the country.

The U.S.A. uses scientific fertilisers; but it has to use manure and probably short supply of manures enforces the use of fertilisers as additive, for their cattle wealth is limited. However, the adverse effect of the excessive use of scientific fertilisers is now being felt in their output as also on the produce. Their crop yield per acre is in no way more than the Indian acre, while the quality of their foodgrain is much inferior to its Indian prototype. Compare their red wheat with our Khandva or Pisi and their red Jowar with our white Jowar. It seems sensible that the inferior foodgrain we receive from America are not specially grown for us but it is the only quality produced there and what they eat is sold to us. Both the U.S.A. and India have nearly the same acre-age under agriculture and produce 100 mln. tons each but because of their population being a third of that of India, the U.S.A. has food surplus. Further their daily diet has a very high content of milk products adding to the exportable surplus. After 1947. the agriculture cost in the U.S.A. has risen by 35%. Progressive mechanisation of the agriculture progressively increased the output costs and deteriorated the quality. We should not remain under a false impression about the vastness or prosperity of their agriculture. If U.S.A. would not increase their cattle wealth on a very large scale, they would never have cheaper or larger foodgrain output. Higher production per acre is the headache for U.S.A. while that Russia is to become self sufficient. Inspite of this fact both these countries boast of improving our agriculture and alleviating our distress. Not only foodgrains produced with manure are definitely superior in quality but also are more resistant to roting. Our foodgrains last for years while the American varieties rot in a few months.

Here it would be worthwhile to assess the part played by the cow in food preservation. To establish a buffer stock of foodgrains is the permanent post-independent head-ache of the Government. To meet famine conditions and provide against war-time contingency, a buffer stock of about 20 mln. tons should regularly be maintained. To preserve this stock the use of poisonous insecticides and pesticides and air conditioned godowns are prescribed. And even after these huge costs the results obtained, are far below expectations. The cheapest and most secure method of food preservation is to mix weight by weight the cowdung ash with foodgrains and store it in containers. Cowdung ash is insecticidal and germicidal, and moreover it absorbs moisture. If sufficient number of cows is available in the country and if rationing and controls are removed, people would store two years requirements in this manner. Fifty years back foodgrains were preserved in this way. What the Government could not achieve in twenty years the people will achieve in two years.

Irrigation by huge dams is a folly. Wells are the only answer. But are we to fit pumps to these wells? Or KOSH (leather water lifter)? If use pumps, we would need 20 mln. engines and 20 min. engine rooms. These engine rooms would eat away fully our entire years cement production as also iron sheets and steel in huge tonnage. And we are miserably short of all these commodities. Moreover all these costs would be on farm produce. Now if we propose to use bullock-drawn Kosh (leather water lifters) for water drawing, no extra costs are added. The bullock will plough and irrigate the land, carry loads and give manure. Mechanised farming involving tractors, motors and pumps, fertilizers and trucks for transport would add very heavily to the costs so that the farmer will never be able to sell his products below the present prices and people can never hope for a relieved and easy life.

CHAPTER 3 – TRANSPORT

Our agriculture and industry produce 100 min. tons of foodgrains, 10 min. tons of sugarcane, 2.2 min. tons of sugar and an equal tonnage of jaggery, 10 min. tons of cement, millions of tons of spices, vegetables and fruits, 5.8 mln. tons of minerals oils, 66.5 min. tons of coal, thousands of tons of tea, and coffee, 50,000 tons of rubber, 11.1 min. tons of paper and boards, 6.9 min. tons of pig Iron, 4.5 min. tons of steel, 600 min. tons of grass, 6 min. tons of groundnut and a few min. tons of other oilseeds, soap and millions of tons of chemicals, fertilisers, salt and 6.5 min. tons of cotton and equal if not more tonnage of cloth and yam. Agriculture and industrial production aggregates to more than 1,000 mln. tons. This 1,000 mln. tons of commodities have to be transported from fields to factories and from factories to the consuming centres which are spread over this vast areas, and the major bulk of this transport is carried by the bullock. For transport we have 1.21 min. bullock-carts, 3,58,000 railway wagons and 2,20,000 motor trucks. Obviously, if these 12.1 mln. bullock-carts were to be removed from the operation, our transport and distribution system, and as a result both agriculture and industries and the resultant national life, would be in a chaos, for the reason that the railway carries only 180 mln. tons and trucks only 120 min. tons. whereas the balance 70 per cent, or 700 mln. tons, is carried by the age old bullock-carts. Therefore it will be seen that if this poor bullock is done with either by slaughter or by negligence, nothing but chaos will result. And yet we are moving in this direction simply following the advice of the so-called experts (both foreign and indigenous).

Slaughter your cow, and your bullock supply is slaughtered.. Neither trucks nor railways can be built up to replace this transport for obvious economic and technical reasons, roads and so on. Even if we plan and carry out the mechanised transport (a remote possibility) would our farmer be able to bear the cost of such transport? Instead, if we only export the diesel only expected to be consumed in such eventuality (of total mechanised transport) we will earn enough foreign exchange. Instead of adopting the right way if we slaughter our cattle which actually are much lesser than required, we have no alternative but to face a nationwide unprecedented famine and chaos.

Let us examine further the price on account of cow and bullock shortage. A farmer grows food in his field If he has bullocks he would bring his produce to city in his cart and therein he incurs no extra expenses. But once we slaughtered bullocks, his produce has to be transported by truck and of course the cost thereof, resulting in higher price of his produce, will be borne. Ultimately by the Consumer Price-rise results, and transport by trucks would at every stage go on adding to the costs so that the farmer can never sell his produce below the present rates and the poor millions ground in the price mill may never hope for a respite and for an easy and ample life. This is not imagination, it is a fact based on careful study.

As we have seen our agriculture depends upon the cattle and its removal does not seem possible even in distant future. Our food supply from ploughing of the field to the delivery of grain

CHAPTER 4 - NOURISHMENT

Milk is an essential nourishment and even a reduction of its quantum affects the people and therefore the nation adversely. Total deprivation is suicidal. Before the first world war army recruitment required minimum 45 chest measure. But during the passage of time since more and more cows were slaughtered, reducing thereby milk and ghee availability to the people, the construction and physique of the Indians deteriorated so that today the army has to accept recruits with minimum 29 chest. New Zealander consumes one gallon milk per capita and hence New Zealand has proved to be the sturdiest and the strongest soldier during the last world war. Per capita milk consumption in America is 5 lbs. while in Britain it is 2½ lbs. The British Medical Council has prescribed minimum two and a half pounds of milk per man for him to keep physically fit. Provision of two and a half pounds of milk per capital four our people, would need 1250 m.lbs. of milk per day. To obtain this quantity of milk we would need 62.5m. milch cows and an equal number for dry period replacements averaging 20 lbs per cow. However against our need of 125 m. cows we have today 54 m. cows and 49 m. heifers. Most of the 54 m. cows give less than 3 lbs. milk a day and possibly less in the case of about 80% of the cows. Because of this reason along their slaughter is unwarranted; and if they are slaughtered the entire social and economic life of the country would be disorganised and in a mess. Moreover, if not for milk, even for the fuel and the housing (as would be seen later) this low yielding cow should not be slaughtered as thereby the people — the villagers would be left in a most helpless position. Such cow, though of negligible value in respect of milk-yield, amply justify their existence as being very profitable to the nation in respect of the cow-dung fuel to the villager; manure and most important the bullock they could give. These forty million cows in their life time would give 200 m. bullocks valuing Rs. 50,000 M. on the present lowest market value. Further this class of cows can be developed and improved to give about 10/12 lbs. of milk per day in about 15 years time, and forty lbs a day in further 15 years. Instead of adopting this sane way if these 40 m. cows are slaughtered, then crores of Rupees worth milk powder and condensed milk shall have to be imported annually for our children, pregnant women and the sick only. Higher prices may be demanded in our such dire need and moreover we shall yearly lose 65 m. tons of cow dung. A life of 15 years for such cows would result in a loss of 972 m. tons of cow dung amounting to loss of fuel to the villager, manure and 12,000 m. lbs. of milk."

A pregnant mother has to have milk. In cities owing to short supply of milk, calcium can be injected, but what will be the plight of 82% village population' There are no injections, no doctors and no nurses. And these people have no money to buy injections and to pay for doctors' services even if these could be available. For them milk is the only valuable source of nourishment. The health of the country, already deteriorated, would be racked to pieces. We have seen the milk requirements of other nations' and there seems no sense in disregarding their cows and depriving our children and mothers and sick of this precious and sole nourishing food.

We should fix minimum per capital requirements of foodgrains, nourishment, clothing and housing and should see that this minimum is maintained. Otherwise the Independence is of no avail to the common man. Per capital American consumption of nourishing food is one ounce of butter and 1 ½ ounces of fat. Fatty foods are essential to body and insufficient quantities open the door to many diseases. Against the American nourishment standard if we accept only half the quantity, we need half an ounce of ghee or Vanaspati Ghee and one ounce of vegetable oil. Provision of half an ounce ghee per capita would need 19 min. cows only for this purpose. (on estimation of 10 lb milk per cow). These 19 mln. cows would mature 3.8 mln. acres of land to yield 76 min. tons of jowar and bajri and the stalk of these corn plants would well feed these cows. The by product, butter milk would be 380 mln. lbs. Both ghee and butter milk would save 2 ounces of foodgrain per man. This health giving butter milk would reduce the incidence of sickness and illness.

Now instead of pure ghee, if we were to provide Vanaspati ghee the requirement would be 255 mln. ounces or 6975 tons per day. Today we produce 1000 tons. (Here we do not propose to go into its demerits on human health and consider it only from its economic aspects). Our dehusked groundnut production is 4 min. tons which quantity if fully crushed would give 1 .6 mln. tons of oil. (Of course we do not crush entire production of groundnut). To get this daily production of 1000 tons of vegetable ghee we use 375000 tons of the oil annually. To get daily 6975 tons of vanaspati we would need 2.6 mln. tons of oil annually. For this purpose only 9.7 min. tons of groundnut will have to be harvested and the area under groundnut crop will have to be increased six times. The result would be so much less acreage for foodgrains. The loss of foodgrains on account of this sixfold acreage under groundnut would be of such a magnitude that the deficit cannot be made up with any large scale means of whatever nature. Then again the transport problem arise. These 9.7 mln. tons of ground have to be transported from fields to oil mills and more than two and a half min. tons of vegetable ghee to be returned to villages. This would further load our already over burdened poor transport means to a cracking point. Above all these vanaspati supplies will be monopolised into say, a few capitalist hands, and the entire nation would be at their mercy as to the prices they would extort from the people. The profits of these 2.5 mln. tons of vanaspati will be shared by only these few capitalists whereas the distribution of the profits of pure ghee will be amongst more than one lakh MALDHARIS. Decentralisation of the production of ghee between these one lakh people would doubtlessly be a curb to any price rise by them for hoarding would be beyond their reach. Further, because of production being in the consuming areas themselves the transport has not to carry extra burden. Also one lakh of the Indian citizens would earn their bread in an honourable way out of the ghee production as against a few hundred employed in the vanaspati ghee industry. Industry is for people and not people for industry. Vegetable ghee factories' uproar of loss of investment should be ignored and the factories be scrapped if other uses cannot be found.

There are a few instances to show that the cow slaughter brings about price rise while cow protection and propagation would actually and effectively counter act it as also bring ease in life of people. To put it in a nutshell, pure ghee is socialism, while, vegetable ghee is capitalism. Moreover it is obvious how pure ghee production instills healthy national economy while how the vanaspati production gnaws at the very core of the national life.

Now let us consider edible oil. One ounce per head per day would need 52,00,000 tons of oil. Industrial requirements are not included in this figure. This quantity of oil would need crushing of 12 min. tons of groundnut, which if crushed at mills would involve transport to cities and back resulting in added cost to consumers and added load on transport means. More damaging to the consumer interest would be the resulting monopoly in hands of the few hundreds industrial crushers, and these wealthy gentlemen by whatever means would keep the prices higher, the Government remaining helpless, onlooker and people being stripped. In some areas artificial shortage may be created by hoarding resorted to by these speculators while in others by zonal restrictions. This is happening today. The profits of the entire oil industry will flow to the bulging coffers of these few hundred individuals exploiting the common man. How do we reconcile this aspect with our avowed socialistic pattern of the society? Further elaboration on oil prices does not become necessary for the fact that people of all the States have experienced to their cost that in spite of lakhs dt tons of oil production and despite the fact that about 50 per cent of the people cannot afford to buy oil, the prices are soaring higher and higher and one or the other state is always in the grip of oil shortage.

If this situation is to be counter-acted effectively and the prices of oil have to be brought down, we shall have to seek the assistance of the bullock. Gandhiji always preached that production of a commodity should be in the area it is consumed. The entire produce of oil seeds should be crushed in the traditional Bullock-ghani, in the areas in which It is consumed. Each village should have sufficient ghanis in proportion to the local consumption of crop. Having fulfilled the local requirements, the surplus should be carried by bullock carts to the nearby cities. This would put an end to hoarding, by decentralization of production and distribution through small traders and so would check price rise. Such production and distribution would reduce adulteration to the minimum and provide earning to the lakhs of ghaniwalas and small traders and the profits that the vat oil industry Is pocketing would be distributed among these lakhs; instead of among the few millionaires.

This switch over to ghani would need 6,70,000 ghanis and 13,40,000 bullocks, apart from those required for the transport. Mechanised oil crushing has gifted us with artificial speculative hoardings and resultant shortages, zones, tax evasion, price rise, and such harmful legacies; whereas bullock-oriented industry would lower prices, provide living and employment to millions, create a fair distribution of the commodity, and distribute the profits amongst the people reducing their economic and mental strains.

If on account of the cow-oriented economy, the people were to get cheaper and better foodgrains, sufficient ghee, milk and buttermilk, oil etc., their life would be easier and ample and free from worry and their health would improve adding to their capacity for work. As a by-product the drugs and medicines thus saved can be exported.

CHAPTER 5 - FUEL

In our villages, the traditional cow dung cake along with firewood is the common fuel. In cities like Bombay if electricity or gas is not available, may. be on account of strike or damage to the plants even for a day than what disorder and discontent life hell is created. Then if these 575000 villages are deprived of their only source of fuel what would be the result? Even the thought is staggering.

Life needs cooked food. For 82% population of India in villages, kerosene gas or electricity is neither available nor within the villager's means. For them the only economic and easily available fuel is cow dung cakes and firewood. Gas, electricity, kerosene and coal are costly and in difficult supply in cities. The situation in the rural districts is still more difficult. Possible 75% of the villagers may not have seen most of these. To them the only available fuel is cow dung cakes. Before slaughtering cows, we should think in what untenable position these 82% will be placed into.

Insignificant though this problem would appear at first, its ramifications are nearly attaining nation wide grave complexities. If appropriate steps are not taken in time, the day may not be far when imports of bread and biscuits would be necessitated for want of fuel to cook. We have six types of fuel available, namely, electricity, gas, kerosene, coal, wood and cow dung. Electricity and gas are city luxuries because we have no means to plan these within the reach of the 566888 villages and huts. Even if these were possible from where would the villager meet its costs; when for him to get two meals a day is a problem? In cities like Bombay kerosene supplies are short so that eight hours queues is a day-to-day affair then, from where are we to feed these villages? To most of the villagers kerosene even for night lamp is not available and they go without night lamps.

Thoughtless use of wood and coal as fuel has result in depletion of jungles,; producing water shortage.

River bed filled by falling river banks denuded of trees shallows and dries rivers, causing both water and wood shortages. We are at the dangerous juncture where if we do not develop our jungles the entire country would turn into a desert.

This leaves us with cow-dung cakes. Easily available, of this we can meet the demand if simply the cow population is increased. For such fuel requirements we would further need 80 m. cows, and if these cows were to give us 5 lbs. of milk, a lb. per capital supply can be assured. This milk supply would save 2 ounces of foodgrains per head, annual saving being 8.55 m. tons. Cow-dung cake ash becomes a very good fertilizer."

CHAPTER 6 - HOUSING

Before our own eyes lakhs of human beings live on footpaths unprotected from rain, sun and told, their life a howling hell. Deprived of nourishment, education and reasonable upbringing; their children grow up in the gutters. Millions of the middle class society live in tottering tenements always in tear of a live burial. The solution to this problem has so far eluded all state governments and municipalities. Housing society schemes have provided buildings for a few thousands only. And not even a full one percent of the footpath dwellers can afford living in these costly houses.

Villagers having lost their independent small trades and professions as a result of mechanisation, to escape from the increasing grip of shortages created by rationing, zonal restrictions and controls, rush to cities to earn bread. In the cities their only resort is footpath, a life-hell. We dumbly witness this tragic downfall of the Indian culture and religion. Nobody says a word against this. Nobody seems to have an answer to this most uncouth and degrading predicament of human life settlement of this ocean of human beings has to be found. Deprived of any human facilities, their children either succumb to many sicknesses or, if they survive they add, to the growing anti-social elements. If this process is not checked in time a large section of such anti-social roughs will form in the society endangering the very existence of the cultured and good and the entire Indian culture and religions would face extinction. At such a stage, this internal devouring monster would get beyond all control.

There is only one answer to this: a nationwide earnest for adoption of the cow based economy at all government levels and its serious implementation with a view to return this vast millions to the villages, providing them housing and employment.

At the time of building of the Bhakra-Nangal Dam, the Government proudly announced that the Aryans of Rigveda times did not know even to build a house where today a dam of the vast magnitude is built. The officials seem to have only heard the name of Rigveda. Even a volume may not have passed under their eye. Therefore how would they know that the Rigveda describes five types of houses, in detail. namely, those of stone, of bricks, of wood and bamboos, of cow-dung and mud and of tree leaves. Choice of housing should be in consideration of time, financial reach of the people concerned, the circumstances and climate. Our cement production is tar below to suffice buildings for all the required houses. Nor can people afford cement built houses. Of the annual one crore ton cement production half has to go for defence purposes. Cement shortage impeded defence constructions of Rommel, enabling Montgomery to break through the German lines in one onslaught. Therefore defence requirements have to be met on priority. A large bulk of the balance would be consumed in large houses and roads, and industries, leaving a negligible surplus for people's small dwellings. Are we to allow these unhappy millions to rot on footpath and gutters for the next fifty years? And where is the guarantee that at the end of the fifty years the cement supply would meet total requirements of people's dwellings?

Therefore we should adopt the practical and sensible way of providing cow dung-cum-mud dwellings. more suited to the climate, necessities, circumstances and most important to the finances of the people of our country. Cement structures demand repairs in about five years time while the garmati, dwellings need a fresh wash with the dung and earth carried out by the owner involving no monetary expenses. Two to three hundred years old structures of this combination of clay and cow-dung survive today.

It is seen that even the housing problem can easily be solved with the help of cow. Villagers do not get dung on account of the cow slaughter and so cottages are also not available to them. Housing requirements of the country is 9.3 min. in cities and 56.1 min. In the rural area. To provide one room dwellings to the villages only would need 170 min. tons of cement and our annual cement production is only 10 min. tons. We cannot wait for generations to build cement structures. This mud-dung dwellings would require dung of 6.30 mln. cows and with this the entire rural housing requirements can be met and comfortably solved.

CHAPTER 7 - FODDER

One of the arguments by the cow-slaughter protagonists is that when man does not get food from where to feed the cow? Conversely, feed cows and keep them alive and allow men to starve and to die. This argument is clearly misleading and false for the fact that men do not eat grass and cows do not eat rice, dal and chapaties. Obviously men's food interests do not clash with that of the cow. We grow Jowar and Bajri and men eat grain while cows its kadab (decapitated stalk). Our food interests are interdependent and correlated. The root of our food shortage is in the cow shortage. We have seen that if the cow is not there how adversely, to the disastrous limit our commerce and industry, our agriculture and health are affected.

The difficulty experienced in feeding cows is due to the fact that our agriculture is industry-oriented and not food oriented, which means that instead of meeting human needs, the agricultural priorities are made to serve industrial needs. For example, groundnut is sown in 2.40 crores of acres, yielding 16 lakh tons of oil. To get, this 16 lakh tons of oil til sowing needs only 60 lakh acres. But til oil cannot be converted into vegetable ghee. Therefore, til is neglected by the farmer because the industrial consumer, the vanaspati ghee manufacturer would not buy this, as also the farmer is encouraged by the Government to produce groundnut. In fact til sowing would not only create a surplus of 1 .8 crore acres of land for foodgrains, amounting to 45 lakh tons of excess food, but would benefit soil, it not being deteriorated as in the case of groundnut cultivation. Further, til-oil-cake is the best food for cattle. In India rice eaters are about 16 crores as against 32 crores of wheat eaters. For this wheat eating population 8 crores tons of wheat plus a further stock of 3 crores tons for famine and war contingencies, totaling to 11 crores of tons has to be provided for. To meet this tonnage, 16 crores acres have to be under wheat (our present land under cultivation cover 40 crore acres). There is no alternative but to achieve the target. Huge dams and fertilizer factories have, instead of helping towards this target, actually retarded the progress. Therefore 16cr. acres should be allotted for wheat sowing only. Of these 32 crores wheat-eaters about 6 crore are Jowar eaters, 3 crore Bajri eaters and 5 crore maize eaters. Now jowar, bajri and maize are kharitf crops while wheat is a Rabbi crop. Khariff crops will yield 5 crore tons of food grains alongwith 140 crore tons of kadab (stalks). Immediately on harvesting kharif crops gadab should be sown yielding 100 cr. tons. This gadab is also a good fodder and dried gadab is a good fertiliser. The same land can then be utilised for wheat sowing, yielding 5 crores tons of wheat.

Sixty-three crores cows will need 175 crore tons of grass and sowing jowar and bajri only we get a grass yield in excess of this need. Further by developing graze fallow lands an additional 100-150 crore tons of grass can be made available. If the people's need of one ounce edible oil is met 6.25 crore tons of oil-cake would be available. Twenty-six lakh tons of cotton seed is produced, lakhs of tons of jowar is produced and having procured sufficient manure and bullock supply for farming our foodgrain production would rise threefold. With such huge food production the cattle fodder does not remain a problem at all. As a matter of fact we would have fodder in surplus. Along with this, because of superior quality, world markets would willingly pay higher prices for our foodgrains. To achieve this, first of all vegetable ghee production should be totally banned. On our agriculture, cattle and the social economy vegetable ghee has deadlier effect than even atom bombs.

AICC held in Ahmedabad under the presidentship of Late Shri Purshottamdas Tandon passed a resolution to ban completely production, sales, imports and exports of vegetable ghee. This step was in the right direction but for whatever reasons it was never enforced. The figures above should satisfy the reader that cattle feeding is not a problem at all for us but if we do not completely stop the slaughter of the cow progeny our already difficult food problem would aggravate into the question 'What will men eat?' and our rulers will recommend meat and fish eating duly supported by foreign experts; inspite of the fact that fish diet accelerates population growth.

Today we have only two alternatives: Prosper through propagation and development and improvement of cattle, OR destroy cattle and perish yourself.

CHAPTER 8 - DEFENCE

Now let us consider the impact of the cow economy on the defence of our country. The atom bomb is the gravest danger to the very existence of the mankind. Even the USA and Russia fear its outcome. So far no defence is invented against atomic explosions. The Indian Government expects an atomic umbrella from the Atomic Powers. But this provision is not protective, and 'seems impracticable and purposeless. Manufacture of the atomic bombs does not provide protection against atómic bombs. It is only a deterrent, as the invading nation fears return attacks. But in the eventuality of an atomic umbrella or possession of the bombs. The atomic umbrella would necessitate the furnishing powers' installations on our land and it can in return rain, fire on the enemy territories but cannot defend us from destruction. And China cannot be deterred with atom bomb. Our development structure if viewed with sound sense and defence potential, would be found to be very defective. All our industries are localized from fiscal considerations only and in disregard of defence planning. In all industry-saturated areas peoples' hardships are very great in respect of housing, supplies water and transport. Now suppose we are invaded by China and Pakistan. By enemy air raids industrial centres like Bombay, Ahmedabad, Calcutta, are destroyed while armies are fighting on battle fronts. This would immediately result in disruption of supply line. Both army and civil life would starve of essential supplies and chaos all over the country would result in our defeat. Germany lost both the world wars solely on account of her supply line being hit. During the first world war, the German armies were spread over very vast French territories led by great generals like Hindenberg and Leudendort and yet they were beaten solely on account of food shortage. At the end of the second world war the German armies were intact but the Allied aerial bombardments destroyed their industries and distorted supply lines and ushered in the German defeat. We should learn a lessor from these facts. Our country is so vast that if decentralised economy were implemented, even the retreating armies from the battle fronts would not impair or damage the national life as the distribution of life's necessities would remain unimpaired and uninterrupted. Railway and Motor trucks would fully be spared for military demands only. Decentralised economy implies the cow economy. In this decentralised economy large cities are not very important; it is the self sufficient villages and districts which are really important radiating power and strength to the entire nation from end to end. The creation of such self sufficient units is of vital importance, units not dependent for smooth running of life on any outside help. Such units cannot be destroyed by atom bombs. review the Indian History of many centuries. Alexander, Huns, Sythians, Timur, Mahmud Gazni and Ghori, Nadirshah and Ahmedashah Abdali came like typhoons blowing destruction and went back. Large cities were burnt, looted and massacred and these invaders carried away fabulous wealth. But the Indian prosperity and wealth did not recede nor did the inherent strength of the country ebb. Because the heart and soul of Bharat was throbbing in villages. Her industry was humming under each roof in her villages. And all this power and strength and culture and dignity were symbolised in cow, for the country's economy was woven around the cow. Every palace and every hut had a cow tied to its life and the foreign raiders were not able to pierce or damage this power, generated in such a vast land in each dwelling. But the British penetrated the truth; the root base of our strength and power. They slaughtered the cow and broke the cow economy; hit the villages and developed the cities by establishing industries. With this our prosperity departed and poverty stepped in. Cities cracked villages and city thronged people were sucked dry by the vested interests created by the industries, reducing us to the plight we are in."

The temptation to atom-bomb Bombay, Calcutta, Ahmedabad and Kanpur is very difficult for the enemy to resist but what would he benefit by bombarding villages in the rural vast? No power would be foolish enough to squander away atom bombs on villages to destroy meager life and few huts. The atomic armour of both Russia and USA deters each against the other. But China fears none. Russia forced the British retreat on Suez Canal by atom bomb threat in one warning but neither of the top atomic powers have been able to impose even a streak of fear in China because the Chinese strength lies not in her heavy industries but in her multitudes. China cannot be defeated by bombardment of cities like Peking and Shanghi. Her strength lies in smooth functioning of her decentralised industrial and agricultural unit, the village. Both the USA and Russia avoid direct war with China because despite the destruction of cities, these units will function, war will drag on and it will be very very long time before it can be won. Japan could not conquer China for years despite her quick occupation of Peking and Naking, because the Chinese power was decentralised in her villages, and defeat and destruction of each village the Japanese could not achieve. An identical situation persists in Vietnam. Tiny Vietnam combats huge American armies for years, for her strength lies in her jungles, in her marshy lands and in her population distributed in small units. Dependence on heavy industries would have brought Vietnam to its knees at a much earlier stage of the war. Boasting of no large industries this tiny Vietnam has during last two and half decades faced, Japan, routed France and now baffles the USA.

We have two alternatives, namely to develop large scale heavy industries, make atom bomb and starve and become debtors by billions, (a further load would be inevitable to accomplish this in addition to the resulting agricultural recession) OR create such conditions that the enemy would have no temptation or inclination to atom bomb us. My reasoning may not appeal at present but when two of our neighbours would poise for invasion our remorse will know no bounds.

Pakistani disturbance on the Kutch borders affected our transport line, so that wagons for commercial uses were difficult to get. What would happen if both the eastern and the Western borders were afire? All our mechanised transport would have to be employed for the military needs bringing all civil transport to a stand still, all civil life to disorder and chaos. Food, clothing and medicines and agricultural and industrial necessities would accumulate at the production centres, transit of these commodities to cities and villages becoming damned difficult. Entire civil life would break down. Chaos in the rear supply lines would result in defeat of the army on the front irrespective of its large size, experience and up-to-date equipment. Poland, France, Italy and Germany are examples of such defeat during the second world war. The cow economy discussed herein assures well disciplined national civil organisation, non-stop all round production and undisturbed distribution to the relief of the government to concentrate full attention on the war in such an eventuality, because the enemy cannot bombard home to home production centres spread over such a vast area. The cow is the creative atomic power while atom bomb is destructive power of an atom. Power of destruction can be countered only with power of creation. Destruction of fertilizer factories or destruction of railways in times of war, or transport means in total service of defence, any one of these contingencies would result in a total failure of crops and the ensuing defeat on the war front. On the other hand accumulation of huge stocks of fertilizer and industrial products in the factories would create unprecedented financial crisis. Therefore it will be seen that the cow based economy is a guarantee of the safety of our frontiers.

If the cow protects us from the outside invader, she also protects us against the physical enemies, namely diseases, and that to a higher degree. Cow's milk, ghee and other produce gives immunity from Tuberculosis, Raktapitta, small-pox, dysentery and nearly 105 such diseases. Immunity and treatment of diseases with cow medicines will leave a large surplus of indigenous pharmaceuticals for exchange earning export. Today the cow problem has to be considered not only from milk and hide and skin aspects but from all angles of her use and utilities. Enormous benefits the nation would derive from cow progeny development against her negligible feeding costs.

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ANNEXES

CHAPTER VI

GAUSHALAS, GOSADANS, PANJARAPOLES AND FODDER

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GAUSHALAS, GOSADANS, PINJARAPOLES, PASTURE LAND & FODDER DEVELOPMENT

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ANNEX VI (1)

NATIONAL COMMISSION ON CATTLE

(Ministry of Agriculture, Department of Animal Husbandry & Diarying. Government of India)
Jawahar Lal Nehru Stadium, Gate No. 32 First Floor, New Delhi-110003 Tel.: 4368061, 4368062, 4368063
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Dharampal
Chairman

Justice Guman Mal Lodha
Acting Chairman
Convenor - Goshala Gosadan Pinjarapoles Committee

(A) Questionnaire to elicit information from Goshalas, Gosadans, Pinjarapoles and other concerned organizations. Please Tick Mark (✓) Your Answer.

1. Name and address of your organisation with phone No.

....

....Phone.......... ....

2. The date and year of your Goshala's establishment.........................

(a) Is your organisation registered Yes/No

(b) If registered its registration No......................Date.....................

(c) The names of prominent founders of your organisation...............

....

(d) The name of the Ist President and Secy. of your Goshala.

(1)...................................... (2)..

(e) The name of present President and Secy. and their address with Phone No.

President..Phone.......................

Secretary..Phone.......................

(f) The date of present committee's election...................................

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3. Is there any provision for allotment of land for Goshala/Gosadan by Govt./Municipality/..............etc. in your state ? Yes No.

a) What is the maximum limit for allotment of land?......................

b) Is it free of cost or on payment basis? .... Free/Payment

4. Is there any provision for financial aid from the State Government, ABWI, Go-seva Ayog or some other body for initial establishment of Goshala/Gosadan ? Yes No.

If yes; indicate quantum of aid..

5. Is there any provision for financial aid for buildings (shades, office, godown, veterinary unit etc.)? Yes No.

If yes, mention the agency and quantum of aid...............................

6. Is there any special provision for veterinary aid to goshalas/ gosadans ? Yes No.

If yes, specify the agency with information regarding availability of technical staff and medicines...

....

....

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7. Is there any system of fodder reserves arranged by the State government in your state ? Yes No.

8. Is there any provision for water supply to goshalas/gosadans on concessional rates ?. Yes No.

Please indicate the source of water being used for cattle at the goshala/ gosadan.. ....

9. Are the legal provisions applicable by way of Acts and Rules to check the movement of cow and its progeny enroute to slaughter houses? Yes No.

10. Whether the cattle so saved are kept in Goshala/Gosadan Yes/No

If adjusted in goshalas/gosadans, what is the provision for grant-in-aid from the State government for their maintenance........................

....

....

11. Which are the main breeds of cow (indigenous and foreign), being reared in your goshala ?

1. Indigenous breeds...

2.Foreign breeds...

12. Have you facilities for breed improvement? Yes/No

Indicate assistance from the State government in regard to availability of good breed bulls and semen banks............................

....

....

13. What are the main types of fodder and feed generally used for cattle?

Indicate sources of procurement. ....

Average cost per unit (Kgs./Qutl) Rs....................................

Arrangement of funds

own, donations, grant-in-aid etc. ....

Also mention, if there is any provision of assistance, in cash or kind, from the State government..

14. Do you yourself grow fodder on the goshala land ? Yes/No

If yes indicate the percentage of requirement.................................

15. Do you also make use of some trees such as "Khejri", "Ber", "Aru" (Peach), "Senjana" etc. for the purpose of fodder ? Yes /No

Name the fodder trees...

16. What is the system of 'gochar' (community grazing land)? ....

....

Is it accessible for the Goshala cattle Yes/No

17. What are your reactions in regard to temporary allotment of grazing-lands for the community/individual cattle owners by the forest department?..

....

....

18. Does the government in your State provide relief to cow and its progeny in the areas affected by natural calamities such as drought and flood in terms of

a) Fodder supply	Yes/No	Partial / Sufficient
b) Feed supply	Yes/No	Partial / Sufficient
c) Shelter	Yes/No	Partial / Sufficient
d) **Shifting to some safer** place(s)	Yes/No	Partial / Sufficient
e) Grant-in-aid	Yes/No	Partial / Sufficient
f) Veterinary assistance	Yes/No	Partial / Sufficient

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19. Are there some provisions in the governmental system to ensure availability of good quality fodder all the year round to the total cattle population

— of your Area Yes/No

— of your State Yes/No

— Are they sufficient ? Yes/No

Pleae suggest the ways and means for improvement of these systems

....

....

20. Is the status/position satisfactory in regard to provisions for veterinary care alongwith availability of essential medicines and vaccines for the cattle all the year round? Yes/No

Suggest the ways and means to improve the system........................

21. Are there sufficient facilities for veterinary cover in the times of emergency such as epidemic in the cattle folk ? Yes/No

How can the lacunae be overcome in your view ?..............................

22. Do you have state-managed fodder reserves and fodder-banks in your area ? Yes/No

23. Do you collect the whole lot of cow-dung available in your goshala, gosadan, pinjarapole, farm? Yes/No

If yes, indicate its uses for various purposes as given under

A. FARM YARD MANURE (FYM)

Quantity of the cow-dung used	................Kg.
Cost at market rate	................Rupees per Kg.
Total input (quantity)	................Kg.
Total output(quantity)	................Kg.
Total input cost	Rs.................
Total output value	Rs.................
Value of FYM used by self	Rs.................
Total sale proceeds	Rs.................

B- NADEP COMPOST

Quantity of the cow-dung used	.....................Kg.
Cost at market rate	.....................Rupees / per Kg.
Total input (quantity)	.....................Kg.
Total output(quantity)	.....................Kg.
Total input cost	Rs.....................
Total output value	Rs.....................
Value of compost used by self	Rs.....................
Total sale proceeds	Rs....................

C BIO-GAS PLANT

- Size of Bio-gas plant ....
- Daily consumption of cow dung ....Kg.
- Daily output of slurry (quantity) ....Kg.
- Market value of slurry Rs.....................
- Daily output of Bio-gas (cubic feet) ....
- Use of Bio-gas ....
  - i) For cooking for ....persons
  - ii) For electricity generation ....
  - Total market value of gas produced Rs................

24. Are you of the view that Bio-gas plant be recognised as a village industry ? Yes/No

25. Do you collect the total cow-urine ? Yes/No

If not: indicate the fraction i.e. actual collection. Also, mention its uses, input and output costwise.

Total Number of Cattle ....

Possible quantity of urine ....Litres

- Actually collected quantity of urine ....Litres
- Used for pesticides (quantity) ....Litres
- Used for medicines (quantity) ....Litres
- Used for other purposes (quantity) ....Litres

A. PESTICIDES

— Total input cost in Rs. ....

— Total output (Quantity) ....Kg.

— Total output value Rs......................

— Total sale proceeds Rs......................

B. MEDICINES (Panch Gavya Preparations)

— Total input cost Rs......................

— Total output value Rs......................

— Total sale proceeds Rs......................

C. OTHER PRODUCTS (Panch-Gavya preparations)
(Soap, tooth powder, incense sticks, mosquito sticks etc.)

— Total input cost Rs.................

— Total output value Rs.................

— Total sale proceeds Rs..................

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26. In the light of input cost and output value/sale proceeds of Fertilizer, Bio-pesticides, Bio-gas products, Panch gavya medicines and other products whether dry cows, oxen, infirm cattle, etc. are economically viable? Yes/No

If yes, what may be value/cost in terms of money value Rs................

ANNEX VI (2)

Statewise Number of responding goshalas

S.No.	States	Number of questionnaires sent	Number of received responses	Percentage of responses
1	Andhra Pradesh	71	18	27
2	Assam	7	1	14
3	Bihar	79	13	16
4	Chhatishgarh	0	0	0
5	Goa/Daman	4	2	50
6	Gujarat	98	28	29
7	Haryana	157	53	34
8	Himachal Pradesh	13	7	54
9	Jharkhand	17	13	76
10	Jammu & Kashmir	5	1	20
11	Karnataka	70	3	4
12	Kerala	20	4	20
13	Madhya Pradesh	216	36	17
14	Meghalaya	4	0	0
15	Maharashtra	167	14	8
16	Manipur/Mizoram/ Tripura	26	4	15
17.	Nagaland	4	2	50
18	Orrisa	33	24	76
19	Pondichery	6	0	0
20	Punjab	73	15	21
21	Rajasthan	391	203	52
22	Sikkim	1	0	0
23	Tamilnadu	74	10	14
24	Uttar Pradesh/Uttranchal	174	37	21
25	West Bengal	36	5	14
26	Delhi	51	3	6
	Total	1797	496	

ANNEX VI (3)

Questionnaire sent to goshalas, gosadans and Pinjarapoles Questionwise break-up of responses received from 496 goshals

S.No.	Questions asked from the goshalas	Number and categories of responses		
		Yes	No	Not responded this particular question
1	Is there any provision for allotment of land for Goshala/Gosadan by Govt./Municipality.....etc. in your state ? a) What is the maximum limit for allotment of land ?...... b) Is it free of cost or on payment basis ?.......	329 (66.3%)	126 (25.4%)	41 (8.3)
2	Is there any provision for financial aid from the State Government, ABWI Go-seva Ayog or some other body for initial establishment of Goshala/Gosadan ? If yes: indicate quantum of aid	270 (54.4%)	187 (37.7%)	39 (7.9%)
3	Is there any provision for financial aid for buildings (shades, office godown, veterinary unit etc.) ? If yes, mention the agency and quantum of aid............	212 (42.7%)	202 (40.7%)	82 (16.6%)
4	Is there any special provision for veterinary aid to goshalas/gosadans ? If yes Specify the agency with information regarding availability of technical staff and medicines.....	178 (35.9%)	263 (57.0%)	35 (7.1%)
5	Is there any system of fodder reserves arranged by the State government in your state ?	95 (19.1%)	373 (75.1%)	28 (5.8%)
6	Is there any provision for water supply to goshalas/gosadans on concessional rates ? Please indicate the source of water being used for cattle at the goshala/gosadan	131 (26.4%)	331 (66.7%)	34 (6.9%)
7	Are there legal provisions applicable by way of Acts and Rules to check the movement of cow and its progeny enroute to slaughter houses ?	261 (52.6%)	202 (40.7%)	33 (6.7%)
8	Whether the cattle so saved are kept in Goshala/Gosadan. If adjusted in goshalas/gosadans, what is the provision for grant-in-aid from the State Government for their maintenance	244 (49.1%)	204 (41.1%)	48 (9.8%)
9	Have you facilities for breed improvement ? Indicate assistance from the State Government in regard to availability of good breed bulls and semen banks	161 (32.4%)	231 (46.5%)	104 (21.1%)
10	Does the government in your State provide relief to cow and its progeny in the areas affected by natural calamities such as drought and flood in terms of	98 (19.7%)	356 (71.7%)	42 (8.6%)
	a) Fooder Supply b) Feed Supply c) Shelter			
	d) Shifting to some safer place (s) e) Grant-in-aid f) Veterinary Assistance			
11	Are there sufficient facilities for veterinary cover in the times of emergency such as epidemic in the cattle folk ? How can the lacunae be overcome in your view ?	235 (47.3%)	259 (52.2%)	2 (0.5%)

12	Do you collect the whole lot of cow dung available in your goshala, gosadan, pinjarapole, farm ? If yes, indicate its uses for Nadep Compost : a) Quantity of the cow-dung used b) Cost at market rate c) Total input (quantity) d) Total output (quantity) e) Value of compost used by self f) Total sale proceeds	39(7.8%)	429 (86.4%)	28 (5.8%)
13	For Bio-Gas Plant : a) Size of Bio-gas plant b) Daily consumption of cow dung c) Daily output of slurry (quantity) d) Daily output of Bio-gas (cubic feet) e) Use of bio-gas I) For cooking for....ii) For electricity generation f) Total market value of gas produced	46 (9.2%)	422 (85.0%)	28 (5.8%)
14	Are you of the view that Bio-gas plant be recognised as a village industry ?	344 (69.3%)	129 (26%)	23 (4.7%)
15	Do you collect cow-urine in your goshala, If yes, indicate its use for Pesticides a) Total input cost b) Total output (Quantity) c) Total output value d) Total sale proceeds	17 (3.3%)	451 (90 9%)	28 (5.8%)
16	Use for **Medicines (Panch Gavya Preparations)** a) Total input cost b) Total output value c) Total sale proceeds	12 (2.4%)	456 (91.8%)	28 (5.8%)

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ANNEXES

CHAPTER VII

BREED IMPROVEMENT AND PRESERVATION

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BREED IMPROVEMENT AND PRESERVATION

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ANNEX VII (1)

Paragraph 2.2

Indian Cattle Breeds

Origin, Characteristics and Features

(downloaded from the website of Embryo Plus – http://www.embryoplus.com/cattle)

AMRIT MAHAL

Origin:
Amrit Mahal literally means the department of milk. Originally the rulers of Mysore State had started an establishment of cattle collected from the prevalent types of cattle within the area for the supply of milk and milk products to the palace.

At the same time, the bullocks were utilized for the movement of army equipage. The bullocks were regularly classified as gun bullocks, pack bullocks, plow bullocks, etc.

They attracted great attention during the nineteenth century on account of their endurance and the speed with which they could move army equipment. It is claimed that they could maneuver a march of 100 miles in 2 1/2 days.

The cattle of Amrit Mahal establishment originally comprised three distinct varieties: Hallikar, Hagalvadi and Chitradoorg. Prior to 1860, it seems that these three varieties were maintained separate from each other. In 1860, the whole establishment was liquidated for reasons of economy.

By the year 1866, it was realized that an establishment for the supply of cattle was necessity, and, during the year, a herd was again established. Thus, the foundation cattle from which the Amrit Mahal breed was developed were of the Hallikar and closely related types.

Characteristics:
The coloring of Amrit Mahal cattle is usually some shade of gray varying from almost white to nearly black, and in some cases white-gray markings of a definite pattern are present on the face and dewlap. The muzzle, feet and tail switch are usually black, but in older animals the color looks lighter.

The most striking characteristic of these cattle is the formation of the head and horns. The head is well-shaped, long and tapering towards the muzzle. The forehead bulges out slightly and is narrow and furrowed in the middle.

The horns emerge from the top of the poll, fairly close together in an upward and backward direction, and terminate in sharp points which are usually black. In old animals the long sharp points approximate each other and may even interlace to some extent.

The eyes look bloodshot. The ears are small and taper to a point, being carried in a horizontal position. They are yellow inside.

The dewlap is thin and does not extend very far. The sheath and navel flap are very small and close to the body. The hump is well-developed and shapely in the bulls, rising to a height of about 8 inches.

The body is compact and muscular with well-formed shoulders and hindquarters. The neck is strong and fairly long. The back is level, with broad loins and level rump. Legs are of medium length and well-proportioned.

The fetlocks are short and the hooves are hard, close together and small. The skin is thin, mellow and jet black in color, with short glossy hair.

As the cattle are maintained in the pasture areas without any restrictions and handling, they show a very impatient, wild and unruly disposition.

They are at times dangerous, particularly to strangers. They need patience and care in training; hard treatment makes them stubborn. Once they are trained they are extremely fine bullocks, particularly for quick transportation.

They are observed to have great endurance. Cows are very poor milkers.

Reference:
Joshi, N.R., Phillips, R.W. (1953) Zebu Cattle of India and Pakistan, FAO Agriculture Studies No. 19, Publ. by FAO, Rome, 256 pp.

DEONI

The Deoni breed of cattle also sometimes known as Dongari (which means "of the hills"), has been evolved within the last 200 years.

Origin:
It is claimed that it has been developed from a strain descended from the mixture of Gir and Dangi and local cattle. A contribution from the Gir type of cattle is quite evident in the formation of the head and ears, and also of the horns to a certain extent.

They also show a great similarity in general conformation and ruggedness to the Dangi cattle of Bombay State, an area which is not far from the Deoni cattle breeding area.

Characteristics :
The Deoni is a medium-sized animal, which resembles the Gir in physical structure to a large extent. The body color is usually spotted black and white. The face is also similarly patchy and spotted with black and white.

The forehead is convex and bulging, though breeders have not paid the same scrupulous attention to this trait as the breeders of Gir cattle, and though the ears are long and open forward they lack the leaflike structure and also the notch at the tip of the ear that is typical of the Gir.

The horns in typical animals take a characteristic outward and backward curve similar to that generally to be seen in Gir cattle.

The skin is loose and of medium thickness. The dewlap is heavy and the sheath is usually pendulous. The hair is soft and short. The cows have a fairly well-developed udder.
The body is massive and upstanding with considerable depth. The hooves are well-made and shapely and of a black color. The body structure gives appearance of strength.

Reference:

Joshi, N.R., Phillips, R.W. (1953) Zebu Cattle of India and Pakistan, FAO Agriculture Studies No. 19, Publ. by FAO, Rome, 256 pp. Copyright © 1997, 2002. Oklahoma State University Board of Regents. All rights reserved.

GAOLAO

Origin :
The Gaolao cattle fit into the group of shorthorned, white or light-gray in color, with a long coffin-shaped skull, orbital arches not prominent and with a face slightly convex in profile.

It is also observed that the native home of the breed is located along the route taken by the Rig Vedic Aryans from the Northern passes through Central India to the South.

There is a close similarity between the Ongole and the Gaolao except the latter are much lighter, with greater agility.

It is said that the Marathas developed this breed into a fast-trotting type suitable for quick army transport in the hilly areas of Gondwana, Madhya Pradesh.

It was used mainly for military purposes by the Maratha army when invading the local Gond Kingdom.

Old historical records show that the breed had fair milk-producing capacity, but during the last two centuries selection has been directed mainly towards developing a capacity for quick draft.

The breed is found principally in the districts of Wardha, Nagpur and Chindwara.

Characteristics:

Gaolao animals are of medium height, or rather light build and tend to be narrow and long. The head is markedly long and narrow with a straight profile usually tapering towards the muzzle and somewhat broader at the base of the horns.

The forehead is usually flat, though it appears to recede at the top, giving a slightly convex appearance. The eyes are almond-shaped and placed slightly at angles.

The ears are of medium size and are carried high. The horns are short and stumpy, blunt at the points and commonly slope slightly backwards.

The neck is short, with a moderately well-developed hump, which is usually loose and hangs on one side. The hind quarters are slightly drooping. Limbs are straight and muscular.

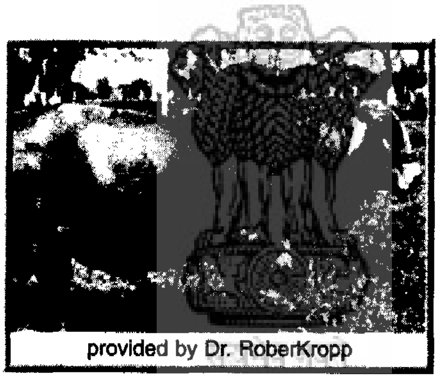
Hooves are of medium size, hard and durable, and suited to hard road and hillside work. The dewlap is large but the sheath is only moderately developed. The skin is thin but loose.

The tail is comparatively short, reaching only a little below the hocks. Females are usually white and males gray over the neck, hump and quarters.

Reference:

Joshi, N.R., Phillips, R.W. (1953) Zebu Cattle of India and Pakistan, FAO Agriculture Studies No. 19, Publ. by FAO, Rome, 256 pp.

GIR

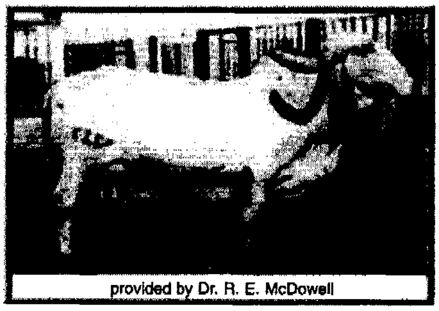


provided by Dr. RoberKropp

It has been used locally in the improvement of other breeds including the Red Sindhi and the Sahiwal. It was also one of the breeds used in the development of the Brahman breed in North America.

The Gir is distinctive in appearance, typically having a rounded and domed forehead, long pendulous ears and horns which sweep back and spiral up. Gir are generally mottled with the color ranging from red to white.

They originated in southwest India in the state of Gujerat and have since spread to neighboring Maharashtra and Rajasthan.



provided by Dr. R. E. McDowell

The females average 385 kg with a height of 130 cm and the males average 545 kg and a height of 135 cm. The average milk production for the Gir is 1590 kg per lactation, with a record production of 3182 kg at 4.5% fat.

Reference:
Genus Bos: Cattle Breeds of the World, 1985, MSO-AGVET (Merck & Co., Inc.), Rahway, N.J.
Mason, I.L. 1996. A World Dictionary of Livestock Breeds, Types and Varieties. Fourth Edition. C.A.B International. 273 pp.
Photographs:
R. E. McDowell, Professor Emeritus of International Animal Science, Cornell University, and provided by Paul O. Brackelsberg, Professor of Animal Science, Iowa State University
Dr. Robert Kropp, Oklahoma State University
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HALLIKAR

सत्यमेव जयते

The Hallikar is a Bos indicus breed selected primarily for draft purposes and are of the Mysore type of zebu cattle.

Considered one of the premier draft breeds in India they are often raised by families who have specialized in production of Hallikar draft animals for hundreds of years. It is not unusual for a cow to be brought 100 miles to mated with a bull from these breeders. They are found primarily in the southern region of Karnataka state, in the

area surrounding Mysore, in the bottom of the Indian peninsula. In addition to normal draft uses the breed is also used for cart racing.
Once trained, a team of Hallikar oxen can pull a loaded cart over rough roads at a rate of 40 miles per day.
The typical color is dark grey. The Hallikar are the origin of the Amritmahal breed.

Reference:
Genus Bos: Cattle Breeds of the World, 1985, MSO-AGVET (Merck & Co., Inc.), Rahway, N.J.
Mason, I.L. 1996. A World Dictionary of Livestock Breeds, Types and Varieties. Fourth Edition. C.A.B International. 273 pp.
Photographs:
R. E. McDowell, Professor Emeritus of International Animal Science, Cornell University, and provided by Paul O. Brackelsberg, Professor of Animal Science, Iowa State University

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HARIANA

The Hariana a Bos indicus breed used for draft purposes in northern India where they are found.

They are well suited to fast road work, being able to pull a one ton load at 2 miles per hour and cover 20 miles a day. While females are kept primarily for breeding of oxen, they are also milked.
The breed averages 1400 kg of milk per lactation but high producing animals will produce over 2300 kg in a single lactation.
The breed belongs to the shorthorned type of zebu and is grey or white. The average cow weighs 310 kg and the average bull 430 kg.

Reference:
Genus Bos: Cattle Breeds of the World, 1985, MSO-AGVET (Merck & Co., Inc.), Rahway, N.J.

Mason, I.L. 1996. A World Dictionary of Livestock Breeds, Types and Varieties. Fourth Edition. C.A.B International. 273 pp.

Photographs:
R. E. McDowell, Professor Emeritus of International Animal Science, Cornell University, and provided by Paul O. Brackelsberg, Professor of Animal Science, Iowa State University

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KANKREJ

Also Known by: Bannai, Nagar, Talabda, Vaghiyar, Wagad, Waged, Vadhiyar, Wadhiar, Wadhir, Wadial.

The Kankrej breed of cattle gets its name from a territory of that name in North Gujarat of Bombay Province, India.

The breed comes from southeast of the Desert of Cutch in western India, particularly along the banks of the rivers Banas and Saraswati which flow from east to west and drain into the desert of Cutch.

In Radhanpur State, which is adjacent to the Kankrej tract, the breed is known as Wadhiar. In Cutch State it is known as Wagad or Wagadia, taking its name from the community of herdsmen who breed these cattle.

Characteristics:
The Kankrej is one of the heaviest of the Indian breeds of cattle.

Color varies from silver to gray to iron gray or steel black. Newly born calves have rust red-colored polls, this color disappearing within 6 to 9 months.

Forequarters, hump and hindquarters are darker than the barrel, especially in males. The switch of the tail is black in color. The forehead is broad and slightly dished in the center. The face is short, and the nose looks slightly upturned. The strong lyre-shaped horns are covered with skin to a higher point than in other breeds.

The ears are very characteristic being large, pendulous and open. The legs are particularly shapely and well-balanced and the feet small, round and durable.

They are active and strong. The hump in the males is well-developed and not so firm as in some breeds. The dewlap is thin but pendulous and males have pendulous sheaths.

Pigmentation of the skin is dark and the skin is slightly loose and of medium thickness. Hairs are soft ad short.

The Kankrej cattle are very highly prized as fast, powerful draft cattle. They are also fair producers of milk.

These cattle are resistant to Tick fever and they show very little incidence of contagious abortion and tuberculosis. It has also been observed that the red color is recessive.

Reference:
Joshi, N.R., Phillips, R.W. (1953) Zebu Cattle of India and Pakistan, FAO Agriculture Studies No. 19, Publ. by FAO, Rome, 256 pp.
Mason, I.L. 1996. A World Dictionary of Livestock Breeds, Types and Varieties. Fourth Edition. C.A.B International. 273 pp.
Photographs:
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MALVI

The Malvi is primarily a draft breed which has developed in to different strains which are heavy, light or medium in size, depending on soil conditions.

सत्यमेव जयते

Origin
These cattle are mainly bred in the Malwa tract of Madhyabharat State of India. In the western parts adjoining Rajputana the type bred is larger in size. In parts of Madhya Pradesh where Malvis are bred, it is smaller in size.

It is also bred in the northeastern section of Hyderabad state, where it is a popular breed for medium and light draft on the roads and for cultivation. It has been said that the Malvis resembles the Kankrei in many ways.

Characteristics

Malvi cattle have short, deep and compact bodies. The back is straight but the hindquarters are drooping. The legs are powerful but short and the hooves are strong and black in color. The dewlap is well-developed and the sheath is moderately pendulous. The head is short and broad with dished forehead. The hair around the eye sockets and the eye membranes are black in color.

The muzzle is broad, dark colored and slightly upturned. The horns, which emerge from the outer angles of the poll in an outward and upward direction, are strong and pointed. The ears are short and pointed and not drooping.

The tail is of moderate length with black switch reaching to about the fetlock. The color is gray almost black on the neck, shoulders, hump and quarters. The cows and bullocks eventually become nearly pure white with age.

The breed is well-known for draft qualities. It is observed to be good on the road for quick transportation. Also the bullocks work well in the black cotton soil.

They show great endurance and ability to carry heavy loads on rough roads. The cows observed in the village areas are observed to be poor milkers but selected cows on the farm show that they can produce 2.000 to 2,700 pounds of milk per lactation.

Reference:
Joshi, N.R., Phillips, R.W. (1953) Zebu Cattle of India and Pakistan, FAO Agriculture Studies No. 19, Publ. by FAO, Rome, 256 pp.
Photographs:
We are currently searching for additional photographs and information on this breed. If you have materials which we could borrow or if you know of a potential source please contact us using the comment form below.

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NAGORI

Origin

Nagori cattle are prevalent in the former Johrpur State, now a part of the State of Rajasthan in India. Nagori cattle are classified into the short-horned white or light gray cattle with a long coffin-shaped skull, orbital arches which do not prominent, and their face is slightly convex in profile.

It has been suggested that probably the blood of gray lyre-horned cattle might have entered into the composition of Nagori cattle. Taking into consideration the proximity of the native homes of the Hariana in the north and northeast and Kankrej in the south and southwest, it seems reasonable to suppose that Nagori cattle may have evolved from these two groups.

Frequency of famines in its native home has necessitated extensive movements of the cattle to other regions in search of fodder, and this has no doubt led to frequent intermixture.

Characteristics

Generally the Nagori cattle are fine, big, upstanding, active and docile, with white and gray color. They have long, deep and powerful frames, with straight backs and well-developed quarters.

There is throughout the Nagori breed a tendency to legginess and lightness of bone, though the feet are strong. It is supposed that this characteristic has given the breed its agility and ease of movement.

The face is long and narrow but the forehead is flat and not so prominent. The eyelids are rather heavy and overhanging and the eyes are small, clear and bright. The ears are large and pendulous.

The horns are moderate in size and emerge from the outer angles of the poll in an outward direction and are carried upwards with a gentle curve to turn in at the points.

The neck is short and fine, and looks powerful. The dewlap is small and fine. The hump in the bulls is well-developed but not so firm and thus in many cases hangs over. The shoulders and forearms look muscular and powerful.

The legs are straight with hooves compact, strong and small. The tail is of moderate length reaching just below the hocks and terminating in a tuft of black hair.

The sheath is small. The skin is fine and slightly loose. The cows usually have well-developed udders with large teats.

The Nagori breed is one of the most famous trotting draft breeds of India and is generally appreciated for fast road work. As such, more attention has been paid by the breeders towards producing an agile yet powerful animal with a great deal of endurance.

Nagori cattle are famous as trotters, being used all over Rajputana in light iron-wheeled carts for quick transportation. They are also worked for all agricultural purposes, such as plowing, cultivation drawing water from wells and transportation of field produce to markets.

Reference:
Joshi, N.R., Phillips, R.W. (1953) Zebu Cattle of India and Pakistan, FAO Agriculture Studies No. 19, Publ. by FAO, Rome, 256 pp.

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NELORE

The Nelore is of the species Bos indicus (Zebu), and has great dissimilarities to breeds of the Bos taurus (European) species, like the Angus, Hereford, Charolais and others.

Origin

Their most distinctive characteristic is the presence of a prominent "hump" behind their neck, but there are many other fundamental differences between the Nelore and the European breeds.

There has never existed in India a breed called Nelore. This name corresponds to a district of the old Presidency of Madrás, now belonging to the new State of Andra, by the Bengal Sea. It was in Brazil that some authors started to use the name Nellore as a synonym to Ongole, the Indian breed that contributed most to the creation of the Nelore. The history of the Ongole dates back 2,000 years before Christian times. It was the Aryan people that brought the ancestors of the Nelore to India, where they were submitted to extreme weather conditions. The arid lands of Belushistan, the cold winters of Punjab, the alluvial lands of Ganges and the torrid lands by the Bengal sea provided the Ongole breed with the adaptation genes that are now favorably expressed in the modern Nelore.

Brazil has become the largest breeder of Nelore, and from there the breed was exported to Argentina, Paraguay, Venezuela, Central America, Mexico, United States and many other countries. In all those places, the contribution of the Nelore was remarkable, whether through purebred selection within the breed or through crosses with local breeds, many times of European origin.

The Nelore was first acknowledged in Brazil in 1868, when a ship on its way to England carrying two Ongoles stopped in Salvador, Bahia, and the animals were there sold. Ten years later, a breeder from Rio de Janeiro, named Manoel Ubelhart Lemgruber, bought another couple from the Hamburg Zoo in Germany. Then the Nelore breed expanded gradually, first in Rio de Janeiro and Bahia, then in Minas Gerais, having reached Uberaba in 1875.

The creation of the Nelore Herd Book and the definition of the breed standards in Uberaba, 1938, was of great relevance in the formation of the Nelore. In 1960, 20 animals were imported, and in 1962, the last and most relevant purchase of live animals from India authorized by the Brazilian Government, 84 Ongoles were imported. These became founders of important breeding lines like Godahvari, Karvadi and Taj Mahal, and were decisive to the great expansion of the Brazilian herd in the last 30 years, going from 56 million in 1965 to 160 million in 1995, 100 million of which are Nelore.

Distinguishing Characteristics

It is said that there is no ideal breed, and that every breed has strong points and none is better for all important economic traits, the Nelore is certainly the best alternative for economic beef production in the tropics, which are responsible for 65% of the world's bovine population.

Hardiness. The main advantage that the Nelore has over other breeds of beef cattle is its hardiness. Calves are alert, with an active behavior, standing up and suckling soon after they are born, without any need for constant human intervention. The Nelore has notable physical strength and is unexcelled in its ability to thrive under harsh climatic, nutritional and sanitary conditions, frequent in the tropics. Because of their hardiness and rustling ability, Nelores surpass all other breeds under conditions of poor range and drought.

Heat and Insect Resistance. The Nelore has a loose skin with sweat glands that are twice as big and 30% more numerous than those of the European breeds. The Nelore's black skin, covered by a white or light gray coat helps filtering and reflecting harmful sun rays. Its low level of metabolism also contributes to heat resistance, as the Nelore feeds less but often, generating less internal heat. Nelores possess natural resistance to various insects, as its skin has a dense texture, making it difficult for blood sucking insects to penetrate. Nelores also have a well developed subcutaneous muscle layer which enables them to remove insects simply by shaking their coat.

Metabolic Efficiency. The Nelore can efficiently convert poor quality forages into beef, and withstand long periods without water. Due to their habit of feeding lightly but frequently, Nelore and Nelore hybrid cattle are highly resistant to bloating, and death losses rarely occur from this cause. Excellent feed conversion ratio and good disposition allow the Nelore to be early finished in feedlots, with highly positive results.

Meat Quality. While the beef of some breeds have excessive marbling, or intra-muscular fat, beef from Nelore cattle have enough fat to be highly palatable. The Nelore matches the recent shift in the beef industry towards a low calorie, leaner meat diet, without compromising taste. This was demonstrated at the 1991 Houston Livestock Show and Rodeo, when a purebred Nelore steer won the "Best Overall in Taste" contest, competing against dozens of hybrid and European steers.

Reproductive Efficiency. Nelores have long, deep bodies with clear underlines, keeping vulnerable parts out of the way of infection. Cows have small udders and short teats, while bulls' sheaths are also short. These characteristics contribute to the breed's reproductive efficiency. Nelore dams have a long and prolific reproductive life, pronounced mothering ability, and plenty of milk for their calves. The Nelore cows calve very easily due to their greater frame, wide pelvic opening and larger birth canal, which reduces the incidence of distocia.

Maternal Instinct and Disposition. Nelore dams have highly developed maternal instinct throughout the whole milking period, which is of great importance for extensive breeding systems. They lick their newborn, put them to suckle and look for a safe place to hide them from predators. The active and vivid disposition of the Nelore is largely responsible for their unusual thriftiness, hardiness and adaptability to a wide range of feed and climate. Nelores like affection and quickly respond to kind handling methods, becoming extremely docile.

Selection

A lot of genetic variation exists among all breeds, and the selection within a breed is almost as important as the choice of the breed itself. Generation after generation, during thousands of years favoring the survival of the strongest and better prepared to withstand the intense heat, the lack of forages, the prolonged dry season and the many diseases has shaped anatomically and physiologically the ancestors of the modern Nelore with a common denominator: hardiness, fertility and longevity.

Once in Brazil, this natural selection base was then managed and redirected for beef production. The result was encouraging. In a few decades, the Brazilian Nelore became an impressive biotype in terms of uniformity, conformation and quality, still preserving the attributes of hardiness and vivid disposition. Once the ethnic purity was consolidated, the Brazilian Nelore breeders have been selected for body size and muscular development, as well as skeletal soundness.

Each and every registered Nelore sire is the outcome of a complex process of selection. Breeders receive assistance from a nationwide association, the *Associação Brasileira dos Criadores de Zebu* or ABCZ. Birth weight, weaning weight, yearling weight, scrotal circumference, are some of the traits measured. Research centers and universities calculate EPDs (Expected Progeny Difference) through complex mathematical models and powerful super-computers, making the results available to breeders to support their selection decisions.

Genetics and Breeding

Today, the number of purebred registered Nelore is above 5 million. The challenge faced by selection is to multiply the genetic gains to a much larger population. To multiply the genetic potential of Nelore sires, Artificial Insemination is being used in large scale since the 60's. Sales of Nelore semen represent 65% of the AI market of all beef breeds in Brazil. The leading Nelore sire there produced and sold 34,000 straws of semen in 1995, followed by another Nelore that sold 30,000, which means that both sires must have bred more than 20,000 cows.

Effort is also being made to multiply the genetic potential of Nelore dams through the use of embryo transfer. With more than 50,000 embryos transferred per year, a great part of which are Nelores, Brazil is already the 3rd country in this technology, after the United States and France. Work is also well under way with frozen embryos, embryo splitting and *In Vitro* Fertilization of Nelores.

The Polled Nelore

There is a worldwide tendency for the elimination of horns in all cattle breeds through the use of naturally polled animals. The advent of the Polled Nelore, some 50 years ago, has presented the beef cattle industry with an option to avoid the mechanical removal of horns, a common practice, especially in feedlots. This dehorning method is expensive, time consuming and painful for the animal, causing stress and weight loss, besides exposing the steers to various infections. If horns were necessary for defense purpose in a wild environment, today a naturally polled animal brings many advantages.

Management of polled herds is easy and friendly, as herds are more homogeneous and it is possible to gather more animals at one time in the corral or in a truck for transportation. The polled Nelore also presents less injuries from fights, preserving their coats for the leather industry. As a result of these advantages, the number of genetically polled steers in commercial herds is rapidly increasing.

Since the polled type is genetically dominant over the horned type, when a horned dam is bred to a polled sire or a polled dam is bred by a horned sire, approximately 85-90% of the offspring will be genetically polled. That is of great importance to the polled Nelore selection, as breeders have access to both the polled and the horned Nelore genetic banks. It also allows breeders of the horned type to easily start a polled herd simply by using a polled sire on their dams.

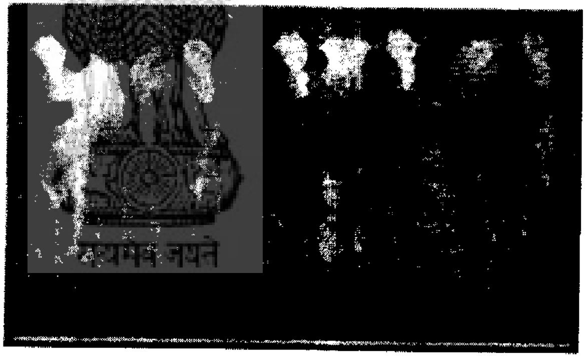
Crossbreeding

There is a universal trend toward meat production through crossbreeding. Heterosis, or hybrid vigor, is the biological phenomenon in which the performance of the offspring is greater than the average of the parents. The more distantly related the parents are, the greater is the hybrid vigor response in their progeny. Classic scientists like Linneo and Darwin supported the idea of *Bos Indicus* (Nelore) and *Bos Taurus* (European) to be considered separate species due to the differences they presented from the adaptation to environments diametrically opposites in latitude. In beef cattle, maximum hybrid vigor results from crossbreeding these two historically unrelated species.

Hybrid vigor in beef cattle is expressed in heavier weaning weights, increased milk production, greater calf vitality, higher fertility and increased resistance to disease. In addition to increased weight for age and greater carcass efficiency, the hybrid animal inherits to a great extent many economic characteristics of its Nelore parent, such as drought resistance, heat tolerance, disease resistance and increased longevity.

Ina recent research done by the U.S. Meat Animal Research Center in Nebraska, the Nelore F_1s showed the largest percentage of unassisted calving, the highest weaning percentage, and their offspring calves were 2nd in 200-day weaning weight of the 11 breeds evaluated. These results combined placed the Nelore F_1s as the most productive dams, with an impressive 115.0 ratio.

In the United States a common spelling for the breed is Nellore. When the Ongole breed was first imported from Andhra Pradesh to Brazil it was called "Nellore" after the district of origin. Soon the extra "L" was dropped since it is not necessary in Portuguese. Several authors now give Nellore as a synonym of the Ongole breed from India.



Reference:
Correspondence, João Pedro Flecha De Lima, Rua Prof. Alexandre Correa, 591 - 4 and. 05657-230 Sao Paulo, SP - BRAZIL
E-mail: jpflecha@amhost.amcham.com.br
Joshi, N.R., Phillips, R.W. (1953) Zebu Cattle of India and Pakistan, FAO Agriculture Studies No. 19, Publ. by FAO, Rome, 256 pp.
Mason, I.L. World Dictionary of Livestock Breeds. Third Edition. C.A.B International. 1988
Correspondence, I.L. Mason, Edinburgh, Scotland
Photographs:
João Pedro Flecha De Lima, São Paulo, SP - Brazil

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NIMARI

Nimari cattle show a mixture of Gir and Khillari (Tapi Valley strain) breeds. The breed has taken the coloration from the Gir as well as its massiveness of frame and the convexity of the forehead.

Origin

It has acquired the hardiness, agility and temper of the Khillari with the formation of feet and occasional carroty color of the muzzle and hooves. Starting from Barwani and Khargone districts of Madhyabarat, the breed spreads into Khandwa, and parts of Harda of Madhya Pradesh. It is also bred in adjacent parts of Bombay State.

In the Satpura ranges of Madhya Pradesh there is a strain of cattle known as Khamla, which is much smaller in size but very akin to the Nimari. In addition, the Khamgaon strain found in Berar may be an offshoot of the Nimari. This breed of cattle is prized for draft work, though few animals show evidence of fair milking qualities.

Characteristics

The animals are well-proportioned and compact in appearance. In general they are red in color with large splashes of white on various parts of the body. In the Khamgaon strain the color is occasionally black or light red and white. In the Khamla strain it is red with a violet tinge and white or yellow and white.

The head is moderately long with a somewhat bulging forehead, it is carried alertly and gives the animals a graceful appearance. The horns usually emerge in a backward direction from the outer angles of the poll, somewhat in the same manner as in Gir cattle, turning upwards and outwards and finally backwards at the points.

Occasionally, the horns are also like the Khillaris in size and shape, with copper color and pointed. The ears are moderately long and wide and are not pendulous. the muzzle in many animals is either copper-colored or amber-colored.

The body is long, with a straight back and moderately arched ribs with the quarters usually drooping to some extent. There is a tendency to prominent hips common to the Gir. The dewlap and sheath are moderately developed, though the sheath is apt to be pendulous.

The hump in bulls is well-developed and apt to be hanging at times. The limbs are straight and clean and the tail is long and thin with a black switch reaching to the ground. Hooves of the animals are strong and can stand rough wear on stony ground. The skin is fine and slightly loose. The cows usually have well-developed udders.

Reference:
Joshi, N.R., Phillips, R.W. (1953) Zebu Cattle of India and Pakistan, FAO Agriculture Studies No. 19, Publ. by FAO, Rome, 256 pp.
Photographs:
We are currently searching for additional photographs and information on this breed. If you have materials which we could borrow or if you know of a potential source please contact us using the comment form below.
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ONGOLE

The Ongole breed, like other breeds of cattle in India, takes its name from the geographical area in which it is produced.

Origin
It is also called the Nellore breed for the reason that formerly Ongole Taluk, a division of a district, was included in the Nellore district, but now it is included in the Guntur district. The area is part of the Andhra Pradesh in India.

This breed is included among the gray-white cattle of the north, having white or gray color, stumpy horns and a long coffin-shaped skull. It has a great similarity with the Gaolao breed of Madhya Predesh and also has a resemblance to the Bhagnari type of cattle in the north of India.
This similarity is not surprising in view of the fact that these breeds lie along the path taken by the Rig Vedic Aryans in their march from the north to the south of India.

It is claimed that the finest specimens of the breed are found in the area between the Gundalakama and Alluru rivers in the Ongole and Kandukur taluks, and also in the villages of Karumanchi, Nidamanur, Pondur, Jayavaram, Tungtoor and Karvadi and along the banks of River Musi. They are also famous from the taluks of Vinukonda and Narasraopet.

Characteristics

The Ongoles are large-sized animals with loosely knit frames, large dewlaps which are fleshy and hang in folds extending to the navel flap, and slightly pendulous sheaths. They have long bodies and short necks; limbs are long and muscular.

The forehead is broad between the eyes and slightly prominent. Eyes are elliptical in shape with black eyelashes and a ring of black skin about 1/4 to 1/2 inch wide around the eyes. Ears are moderately long, measuring on an average for 9 to 12 inches, and slightly drooping. Horns are short and stumpy, growing outwards and backwards, thick at the base and firm without cracks. In some animals the horns are loose; this is probably due to the horn core not growing well.

The hump in the males is well-developed and erect and filled up on both sides and not concave. The skin is of medium thickness, mellow and elastic and often shows black mottled markings.

The popular color is white. The male has dark gray markings on the head, neck and hump and sometimes black points on the knees and on the pasterns of both the fore and hind legs. A red or red and white animal of typical conformation is occasionally seen.

They have a white switch of the tail, white eyelashes, a flesh colored muzzle, light colored hooves, dark gray marking on the hindquarters and dark mottle appearance on the body.

Ongole cattle are efficiently used in their native home for both work and milk production. They are usually docile and the bulls are very powerful, suitable for heavy plowing or car work but are not considered to be suitable for fast work or trotting purposes. The cows are fair milkers.

All animals currently used for food and agriculture and the result of Domestication from wild progenitor species like their wild relatives. These Domestic species are continuously evolving albeit at an accelerated rate due to human activity.

In general the history of cattle followed the history of man, where even either primitive or modern. Man has migrated he has tended to bring with him his own breeds of cattle. During vedic period many of the useful animals have been brought under service of man, particularly.

Milk became useful since Rigvedic period. The selected those animals species that are having vigor, inborn nearness, social ability and docility.

The evolutionary process has been accelerated in the domestic species particularly cattle, as a consequence of 10,000 years of selection by human, during this period with in the species genetic variation which is essential for the survival of all species, has been partially redistributed in the formation of the large number of unique cattle breeds now exists.

These breeds have adopted too many environments as the breeds spread and have been used to produce different types and combinations. A major group of mammals to be domesticated after caprinae were the large ruminants (Bovinae), which included the humped (Bos indicus) and hump less (Bos Taurus) cattle, yak, mithun, banteng and buffalo.

This range of species in the family Bovinae make a very large number of important contributions to food and agriculture, providing just under 30% world meat and 87% world milk. This Bovinae provided the planet with a means of digesting via fermentation.

Same types of zebu animals are present from the time of Indus Valley civilization dating back to 3000 BC Indian subcontinent is a treasure house of Bos-Indicus Cattle.

Farmers in the breed tract has selected and preserved each successive variation, with the distinct intention of improving and altering a breed, in accordance with a preconceived idea, and by thus adding up variations, often so slight as to be imperceptible to the uneducated.

He has effected wonderful changes and improvements in the direction he desired as we see here under in Ongole Breed from 1880. There is a tendency in the breed to grow leggy with sparse light carriage, but their form, temper and endurance earned nearness to the breeders.

Effect of heat loads on Ongole cattle

Radiation:
Solar radiation received from sun is through solar terrestrial. The amount of radiation emitted for a particular location depends on global positioning, latitude, and longitude.

Infrared radiation is intense in tropics, having sterilizing effect, stimulates tissues, increases metabolic processes. Non-pigmented skin has a definite hazard. 85% of solar radiated heat is sent back to the environment by the Ongole animal through its white, reflective coat.

Diurnal variations such as seasons, humidity, latitude, altitude, influences variation in radiant heat loads. The rest 15% of heat immediately absorbed by the under lying black skin.

When the animal has nine blacks, total body skin will be black these cattle reduces heat load through behavioral means, and postural adjustments, also orientation towards sun make it protect its own parts through shade and thus reducing heat loads.

Long legs of this breed helps in minimizing absorption of solar radiated heat. Light carriage also helps are exposed to sun.

Conductive and convective heat loads on these cattle transfer between surroundings and direct contact through soil and bedding, drinking water, feeds and fodders. Avoiding lying down stretching its body parts also helps.

Light is the most constant factor having vigor. Light influences on pituitary, shedding of hair on seasons, increase in metabolism, vision. High light intensity decreases cell wall content and increases water-soluble carbohydrates in vegetation and thus influences livestock.

Relative Humidity:
% of moisture in air is humidity. Air moisture content influences animals heat balance particularly in warm climates where evaporative cooling is crucial to homeothermy. High

humidity associated with high temperature favors less nutritive value of feeds and fodders, of ten the stock are light colored, with pigmented skins, and shade lovers.

These influence humidity aerial movement, transpiration, rainfall and temperature.

Characters associated with hardiness and thriftiness:

1) Has the ability to reverse down metabolism during extremes of scarcity.
2) Efficient forager and does not force the calf for foraging.
3) Fruitful in milk with exact fat percentage to keep the calves at rapid growth.
4) Tight sheath and small teats to avoid injuries of grazing animals.
5) Sloppy rumps are suitable for quick and hard work, having 4 sacral vertebrae.
6) Have more number of bigger, functional, sweat glands per unit area of the skin.
7) Having white or light colored, short, sleek, densely, reflecting and glistering coat, which will not attract vectors and dislodge them with insulting character.
8) Skin, pigmented, black, mellow, loose, thick and presence of subcutaneous panniculus carnosis muscle, which repels vectors by twitching.
9) Highest heat tolerant coefficient.
10) Basal metabolic rate low.
11) Nutritional uniqueness, ability to convert low protein, high fiber roughage materials into high-grade foodstuffs with the aid of Omasal symbionts, such as thrives and performs well on inferior fodders.
12) Crude protein utilization is highest.
13) Perform well where even pastures are seasonal, scanty, and sparse.
14) Spent much time in grazing even during daytime, seek shade only 3% of their total grazing time.
15) Slow to cycle, when under nutritional stress or lactation stress, but response to cycle is immediate when nutrients are plenty.

Ongole Breed Tract:
Originally the breed tract comprises areas where there is no assured or commercial crops, leaving cattle raising as the only profitable proposition by selling bull ghee (Clarified butter), since crops and cultivation are not profitable.

The farmers are quite aware of the food, investment, manure, forage, draught animal power and employment linkages, improving through subsistence security, transfer of nutrients, modification of vegetation and finally increasing the human support capacity of the land through Ongole breed of cattle.

These cattle raising formed a part of risk education strategy with agriculture, as livestock is a saving account and their calves are interest.

The farmer is quite conscious of the herd management policy options on direct costs and indirect costs, breeding, off take, purchase and culling. It clearly indicates this breed is originally dairy, later transformed as dual purpose i.e., dairy and draft animals, presently mostly a draught animal.

The breed tract comprised between rivers Krishna on Northern side, Pennar River on Southern side, nalamalai range of forest on Western side and Coromandai coast on Eastern side lying between 15.00 to 16.10' east latitude and 79.04' to 80.02' north longitude.

The rivulets gundlakamma, madigandi, Paleru, Muneru, Musi, Chilakaleru. Whose extensive banks became excellent grazing areas. With population growth and consequent demand for cereals the Brahmini bull selection system has been oriented towards draft characters. The soils are black loam to black clay having large quantities of lime with soil pH of 6.9 to 7.2 most favorable for notification bacteria and luxuriant growth of legumes. Annual rain fall of about 900mm with about 50 rainy days out of which 2/3 roads are from southwest monsoon and 1/3 from northeast monsoon supporting most of the cereal crops.

The average ambient temperature of maximum 32 degrees Celsius and minimum of 23.5 degrees Celsius and average relative humidity of 79%.

After formation of Krishna and Godavari Ayacuts during 1850's with assured irrigation and increased demand for draft services, the breed tract extended to Krishna, Godavari and northern circars.

Original tract is for breeding and extended tract for breeding and rearing, further ceded districts and Nalgonda and Mohaboob Nagar districts as rearing tracts. Extension of breed tract forced for 2 reasons.

The demand for draft services from the area and generally the same species need the same resources and thus are bound to complete for the same, except when they are colonizing a new habitat, as such expansion of the tract.

Ongole Cattle Breeding:

Before organized efforts of the colonial rule, the institution of Brahmini Bull system in the ongole area has substantially improved the breed by avoiding inferior breeding and inbreeding.

It has been the custom in the area that dedicating a young bull selected by a village committee funded by village rich men or the local diety and the bull being branded at a ceremony either with Sanku, Chakra, Trisul, then becomes common property and Brahmini bull is the property of the village and covers the village herd, this is how a small farmer provided the stud services.

The changes in cropping pattern from cereals to commercial crops like chillis, and Tobacco during the 1930's and cotton during 1960's have badly affected the breeds feed resources.

With the introduction and expansion of artificial insemination programs rapidly has resulted in affecting the distribution of breeding bulls under various schemes have been stopped and there is decay in the institution of Brahmini Bull system which primarily supported the breed for centuries.

During 1960's introduction of Taurus breeds through aid programs has helped large scale indiscriminate breeding in the valuable Ongole herds. Like all other resources, the livestock wealth should also to be carefully and properly utilized and preserved.

Planners in an attempt to improve milk production in Ongole cattle did many mistakes. One major error was the perception that output reflects efficiency, Hence the use of exotics on Ongoles to improve indigenous stock. Output was very often the main criteria for which a breed was imported.

Finally after sinking in a lot of money and time, we could learn that genetics is only one and often not the main tool that can ensure greater efficiency of output. Husbandry, survival, health, reproduction efficiency of feed utilization parameters becomes important.

In a craze for cross breeding the excellent government herds built up for decades were also not spared by the planners. The saying that breeding policy should depend on animal, existing production potential, anticipated, goals, environment, man and economic development rather than prejudice, taste and trivial dictates.

Character associated with disease resistance:

a) Premunity high.
b) Reticulo endothelial system well developed.
c) Resistant to eye cancer.
d) Through their coating, insulating, secretary characters are more resistant to tick born diseases.
e) Zebum secretion is fly repellent.
f) Flexible tail tip, having cartilage in place of last 3 or 4 vertebrae helps as a brush to repel vectors.
g) The effects of climatologically variables on Ongoles are varied. High external heat load due to both radiant and high air temperature exposure depends on degree, and duration.

On acute exposure the animal tries to accommodate rather than combat. As a routine the metabolic heat and the catabolic heat produced with in the body also needs to be eliminated.

When heat loss mechanism reaches its maximum values the animal resorts to methods of reducing heat production in an effort to achieve homoeothermic.

Reduction in calarogenic hormones accompanies decrease in Basal Metabolic rate, voluntary feed intake, muscular and ruminal activity and changes in release of gonadotrophic hormone and thus reduced sexual activity.

Ability of animals to maintain core temperature in physiological adaptability and the ability to maintain production/reproduction/growth rates in productive adaptability. These two are often at variance.

Thus selection of traits of physiological adaptability is often incompatible with improvement of production and consequently they are undesirable. Mere reproductive opportunism is generally short lived, if the adaptive ness of the organism is not maintained and almost invariably proves self-limiting.

This is not the case with the Ongoles. Long range fitness of ongole cattle population depends on adaptation, through the stability, variability and the rate of environmental changes helped through domestication by the farmers as they are treated as family pets.

Selection of Ongoles, which attain homeothermy mostly by heat loss mechanism without resorting to reducing the heat production would be those of choice from economic view point.

Soil pH:

No larger breeds of livestock were ever bred in acid pH soils. The soil pH being 7.2 in tract most favorable for legumes. So it increased muscle protein and skeletal size. Cattle in acid pH soils are small in size and are shade lovers.

Feeding:

The fodder crops, grasses and trees that supported the breed for centuries need to be enlightened. The fodder crops either grain or crops or crop residues available from sorghum, zeamays, crotalaria, macrotylma, vigna, cicer, pennisestum, sataria, oryza, kollaganjeru, fodder trees like acacia, azaridachta and fiscus are also used to shade trees.

The fodder grasses that were grown naturally on rivers and rivulets banks, private grazing lands and common grazing lands include andropogan, iseilema, indigofera grasses species has maintained this breed for centuries.

After formation of ayacut the Ongole cattle need to go to forest for grazing from June/July and return only after December/January, surviving predation and theft later attending to threshing operations of cereals.

The migration of population from rural to urban areas, changes in society and pressure on land working against the interest of Ongole cattle, since they are located specific the available poor, scanty, sparse, and seasonal fodders which are low in protein and high in fiber need to be improved by inter-cultivation of legumes, intercropping, chaffing, treatment by way of extensive use of agro industrial bye products should be extensively used.

Characters associated with self-reliance:

a) Enduring and estimable.
b) Docile but alert.
c) Intelligent and respond well for treatment if handled with love, skill, and care.
d) Athletic in nature, with majestic appearance, head high, square walk and quick step, giving noble but heavy look.
e) Try to move in groups to avoid predators.
f) Highest ability to self-preserve and longevity is more than 15 years.
g) Long bodied with big skeletal size and with ability to gain weight more perceptible after 2 years of age and massive.
h) Lack in heart girth due to preponderance of draught type.
i) Vitality and Vigor unique in young ones.
j) Outstanding Mothering ability.
k) Highest combining ability for cross breeding and formation of new breeds.
l) Highest rustling ability to walk long distances in search of food and water and to pace with the herds.
m) Marked tolerance to direct sunlight and radiation.
n) Loose skin, hump, dewlap and other appendages contribute 12% excess surface area per unit weight over Taurus breeds.
o) Outward disposition of horns helps defend from predators.
p) Have highest coetaneous and lowest respiratory heat loss as such panting is less.
q) Have highest multiple ability of adaptation for climate fodder and pathogens.
r) Sensitiveness, intelligence and shyness make them more independent and less dependent on man, more energetic and resourceful.
s) Reproductive uniqueness, higher reproduction rates and more number of lifetime calves high calf survival rates.
t) Calving ease and minimum dystokias, with more birth weight of cattle.

Skin:
The skin covers body and provides protection literally a thermostat for the body. Heat flows from core organs like brain, heart, liver, spleen, intestines, and lungs to surface of body and from surface it should be sent out to environment through radiation, conduction and convection.

Skin contains sebascous and sweat glands, muscles, roots of hair, fallacies and capillaries. When all nine blacks are present, the whole skin is pigmented and black. The presence of subcutaneous "panniculus carnosis" muscle helps in repelling vectors through twitching.

When sweating/respiratory heat loss is 6 in zebus where as it is only 4 in Taurus breeds. Water resorption in kidney and colon is double that of the Taurus. Though skin studies were done in 10 indigenous breeds in India no work was done in Ongoles, but the skin type may lie between type 1 and type 3.

Skin being highly vascular more heat is sent out as sensible heat loss or diffusion heat loss. In Ongoles evaporative and sweat contribute much heat loss.

Ongoles cattle skin secretes zebum, which filters ultraviolet rays. Due to high vascular they bleed profusely if punctured and wounds will heal quickly. Being black in color the 15% of solar heat allowed by coat to pass on is at once absorbed by the skin.

Our farmers are so intelligent that umbrellas are black in color but in villages they used to stitch white cloth over the black cloth on the analogy of the structure of Ongole cattle i.e. white external coat and black underlying skin.

During evolutionary process the body temperature has been increased, at the same time tolerance for that temperature failed to take place in male gametes. This was circumvented through effective thermoregulation mechanism of tests.

Reference:
Joshi, N.R., Phillips, R.W. (1953) Zebu Cattle of India and Pakistan, FAO Agriculture Studies No. 19, Publ. By FAO, Rome, 256 pp.
Dr. A. Madhusudhana, FA, Veterninary Colony, Ring road. Ui Jayawada, A.P. Judia, Pin 520 008.
Photographs:
Dr. A. Madhusudhana, FA, Veterninary Colony, Ring road. Ui Jayawada, A.P. Judia, Pin 520 008.

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The Rathi is a Bos indicus breed used for draft and dairy purposes. It originated in Bikaner and Ganganagar in northwest Rajasthan, India.

The breed is usually dark red or tan but occasionally spotted individuals can be found. The Rathi originated from the Sahiwal and Tharparkar breeds. They should not be confused with the Rath breed which is a separate breed kept by the nomadic Rath cattle breeders.

Reference:

Mason, I.L. 1996. A World Dictionary of Livestock Breeds, Types and Varieties. Fourth Edition. C.A.B International. 273 pp.

Photographs:

R. E. McDowell, Professor Emeritus of International Animal Science, Cornell University, and provided by Paul O. Brackelsberg, Professor of Animal Science, Iowa State University

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RED SINDHI

R. E. McDowell, Professor Emeritus of International Animal Science, Cornell University, and provided by Paul O. Brackelsberg, Professor of Animal Science, Iowa State University (Picture #2)

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सत्यमेव जयते

Also Known By: *Malir (Baluchistan), Red Karachi, Sindhi*

The Red Sindhi originated in the Pakistani state of Sind but due to its hardiness, heat resistance and high milk yields they have spread into many parts of India and at least 33 countries in Asia, Africa, Oceania and the Americas.

Under good management conditions the Red Sindhi averages over 1700 kg of milk after suckling their calves but under optimum conditions there have been milk yields of over 3400 kg per lactation.

The average height of a Red Sindhi cow is 116 cm with a body weight of 340 kg. Bulls average 134 cm in height and a body weight of 420 kg. They are normally a deep, rich red color but this can vary from a yellowish brown to dark brown.

Males are darker than females and when mature may be almost black on the extremities, such as the head, feet and tail.

Red Sindhi in Australia

Red Sindhi cattle arrived in Australia in 1954 from Pakistan, as a gift to the Australian Government. While traditionally considered a milking breed they have been successfully used in crossing systems with British breeds to produce tropical beef types.

In Australia, they have been an adaptable, hardy breed, good foragers and have a high degree of resistance to heat and ticks.

Reference:

Handbook of Australian Livestock, Australian Meat & Livestock Corporation, 1989, 3rd Edition
Genus Bos: Cattle Breeds of the World, 1985, MSO-AGVET (Merck & Co., Inc.), Rahway, N.J.
Mason, I.L. 1996. A World Dictionary of Livestock Breeds, Types and Varieties. Fourth Edition. C.A.B International. 273 pp.
Photographs:
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SAHIWAL

सत्यमेव जयते

The Sahiwal originated in the dry Punjab region which lies along the Indian-Pakistani border. They were once kept in large herd by professional herdsmen called "Junglies"

However with the introduction of irrigation to the region they began to be kept in smaller numbers by the farmers of the region, who used them as draft and dairy animals.

The Sahiwal is one of the best dairy breeds in India and Pakistan. It is tick-resistant, heat-tolerant and noted for its high resistance to parasites, both internal and external.

Cows average 2270 kg of milk during a lactation while suckling a calf and much higher milk yields have been recorded. Due to their heat tolerance and high milk production they have been exported to other Asian countries as well as Africa and the Caribbean.

As oxen they are generally docile and lethargic, making them more useful for slow work. Their color can range from reddish brown through to the more predominant red, with varying amounts of white on the neck, and the underline. In males the color darkens towards the extremities, such as the head, legs and tails.

The Sahiwal in Australia

Sahiwal arrived in Australia via New Guinea in the early 1950's. In Australia, the Sahiwal was initially selected as a dual-purpose breed.

It played a valuable role in the development of the two Australian tropical dairy breeds, the Australian Milking Zebu and the Australian Fresian Sahiwal.

Sahiwals are now predominately used in Australia for beef production, as crossing high grade Sahiwal sires with *Bos taurus* animals produced a carcass of lean quality with desirable fat cover.

The Sahiwal is the heaviest milker of all Zebu breeds and display a well developed udder. Sahiwals demonstrate the ability to sire small, fast-growing calves and are noted for their hardiness under unfavorable climatic conditions.

Reference:
Handbook of Australian Livestock, Australian Meat & Livestock Corporation, 1989, 3rd Edition
Genus Bos: Cattle Breeds of the World, 1985, MSO-AGVET (Merck & Co., Inc.), Rahway, N.J.
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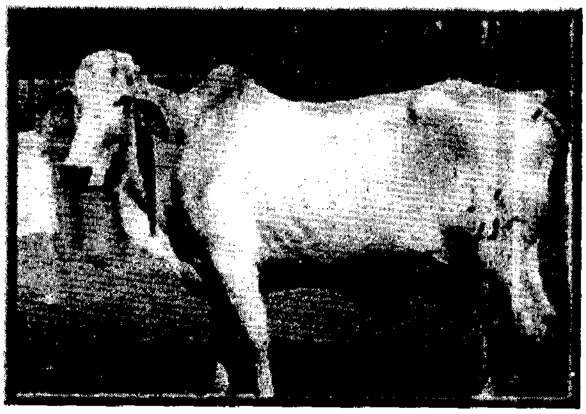
THARPARKAR



Also Known As: *White Sindhi*

Origin

The Tharparkar a *Bos indicus* breed used for milk production and as draft animals. Tharparkar are of the lyrehorned type of zebu cattle. The Tharparkar came into prominence during the first World War when some animals were taken to supply milk for the Near East army camps.

Here their capacity for production under rigorous feeding and unfavorable environmental conditions at once became apparent. Since then many breeding herds have been assembled in India and Pakistan. When left on arid pasture the milk production is approximately 1135 kg per lactation, while those animals maintained in the villages average 1980 kg.

In India and abroad, these cattle are known as Tharparkar since they come from the district of that name in the Province of Sind.

सत्यमेव जयते

The Tharparkar is, however, known differently in its own region. In its native tract and the areas neighboring on it, the breed is called Thari, after the desert of Thar; and it is also occasionally known as Cutchi, because the breed is also found on the borders of Cutch which adjoins Tharparkar to the south.

Then again, in the past these cattle have been known as White or Gray Sindhi, since they are native to the Province of Sind and similar in size the Red Sindhi: this name, however, is no longer used. The Thari is not a homogeneous breed, but that it has the influence of the Kankrej, Red Sindhi, Gir and Nagori breeds.

It is observed that the typical Thari cattle are found in the areas in the vicinity of Umarkot, Naukot, Dhoro Naro, Chhor, Mithi, Islamkot and Khari Ghulam Shah. They are also produced in the adjoining Indian States of Jodhpur, Jaisalmer and Cutch.

Tharparkars are usually kept in herds of 50 to 300 animals by professional breeders called Maldars. They require daily contact with people to prevent them from becoming shy and wild. Tharparkar cows average 138 cm in height and an average weight of 408 kg.

Characteristics

Average animals of the Tharparkar breed are deep, strongly built, medium-sized, with straight limbs and good feet, and with an alert and springy carriage. As the animals are not handled frequently they are apt to be wild and vicious.

The usual color of the cattle is white or gray. In males, the gray color may deepen, particularly on the fore and hind quarters. All along the backbone there is a light gray stripe.
The color of the cattle deepens during the winter months and also when the cows are pregnant. In the Thari tract, in addition to white and gray coat color, black and red or combinations thereof are usually encountered on account of the influence of the Red Sindhi and Gir.

The head is of medium size, the forehead broad and flat or slightly convex above eyes: the front of the horns and face are practically on one plane. The skin between the eyes is often wrinkled, the wrinkles running perpendicularly. The eyes are full and bright. The eyelashes are black and there is a small ring of black on the eyelids.

The ears are somewhat long, broad and semi-pendulous and face forwards. Horns are set well apart curving gradually upwards and outwards in the same line as that of the poll with blunt points inclined inwards. A small portion of the skin with hairs extends over the base of the horns. In the males the horns are thicker, shorter and straighter than in the females.

The hump in males is moderately well developed, firm and placed in front of the withers. The dewlap is of medium size and the skin is fine and mellow. The sheath in the males is of moderate length, and is semi-pendulous.

The navel flap in the females is prominent. The size is variable. Shoulders are light and legs are comparatively short, but in good proportion to the body. The hooves are hard and black, of moderate size and have no tendency to turn out.

The color of the skin is black, except on the udder, under the belly, on the lower part of the dewlap and inside the ears where it is rich yellow. The hair is fine, short and straight, but in the male it is slightly curly on the forehead.

Thari cattle are said to be very hardy and resistant to several tropical diseases but definite date is lacking. Although animals of the breed are excellent foragers and can stand the rigors of climatic and environmental conditions, they have not been used primarily as a source of meat, and breeders have given little attention to meat qualities.

Reference:
Genus Bos: Cattle Breeds of the World, 1985, MSO-AGVET (Merck & Co., Inc.), Rahway, N
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SIRI

Animals of this breed are found in the hill tracts around Darjeeling (Bengal, India) and in Sikkim and Bhutan. Bhutan is said to be the real home of this breed. It is distributed from that area to the various parts of Sikkim and Darjeeling.

Origin
The Siri has a hump that is thoracic and muscular-fatty. Presumably Siri cattle have some blood from the cattle in Tibet.
Small cattle with similar black and white markings have been found in Sikong Province of China, which occupies a portion of the Tibetan highlands northeast of Bhutan. Siri cattle crossed with Nepali cattle look like Siri, but they can be distinguished by their color pattern and position of hump and horns. These are known as Kachcha Siri or imitation Siri cattle.

Characteristics
The color most frequently seen are black and white or extensive solid black, in color patterns similar to that of Holstein-Friesians. The animal carries a thick coat all the year round, and it is generally believed that this protects them from heavy rains and severe cold.
The general form of the animal is massive. The head is small, square cut and well set on. The forehead is wide and flat. The horns are sharp and directed forward and is usually covered with a tuft of long coarse hair. The position of the hump is slightly forward compared with that of other Zebu breeds.
The dewlap is moderately developed and the sheath in the male is tight. Strong legs and feet are characteristics of this breed. The hooves are broad but strong. The udders of the cows are well developed.

सत्यमेव जयते

It is observed that the animals of this breed can stand the rugged conditions of the mountains very well. When the animals are brought down to the plains they do not seem to do so well. Bulls are eagerly sought after for draft purposes due to their size and reputed great strength. They are also used for agricultural work such as plowing, cultivating, threshing, etc.

Reference:
Joshi, N.R., Phillips, R.W. (1953) Zebu Cattle of India and Pakistan, FAO Agriculture Studies No. 19, Publ. by FAO, Rome, 256 pp.

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MEWATI

Mewati cattle are found in the tract known as Mewat, but the breed is sometimes called Kosi, due to the large numbers of cattle of this breed sold from the market at Kosi, a small town in the district of Mathura.

Origin

Mewati cattle are similar in type to Hariana, but show definite evidence of Gir blood. Native habitants of Rath and Nagori cattle being adjacent to Mewat, these two breeds may also have contributed to the formation of the Mewati.

Characteristics

Mewati cattle are usually white in color with neck, shoulders and quarters of a darker shade. Occasionally, individual beasts have Gir coloration. The face is long and narrow with the forehead slightly bulging.

Horns emerge from the outer angles of the poll and are inclined to turn backwards at the points. Eyes are prominent and surrounded by a very dark rim.

The muzzle is wide and square and the upper lip thick and overhanging, giving the upper part of the nose a contracted appearance. The muzzle is pitch black in color. The ears are pendulous but not so long.

The neck and the whole frame is strong but the limbs are light. The legs are relatively long and the frame of the body gives an impressions of being loosely built. The chest is deep but the ribs are flat.

The head and neck show an upright carriage. The dewlap, though hanging, is not very loose. The sheath also is loose but not pendulous. The legs are fine and round with strong, somewhat large hooves, well-rounded in shape. The tail is long, the tuft nearly reaching the heels. Cows usually have well-developed udders.

Mewati cattle are in general, sturdy, powerful and docile, and are useful for heavy plowing carting and drawing water for deep wells. The cows are said to be good milkers.

Reference:
Joshi, N.R., Phillips, R.W. (1953) Zebu Cattle of India and Pakistan, FAO Agriculture Studies No. 19, Publ. by FAO, Rome, 256 pp.
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KHERIGARH

The Kherigarh cattle are closely tied to the Malvi breed.

Origin

The breed is mostly found in the Kheri district of Uttar Pradesh, India. Though the horn formation is typical of the lyre-horned Malvi type, the animals of the breed are much lighter in general appearance than the Malvis.

Characteristics

The Kherigarh cattle are generally white or gray in color. The face is small and narrow. Horns are thin and upstanding and measure 12 to 18 inches in length in bulls; cows usually have smaller horns.

The ears are small and the eyes bright. The neck is short and looks powerful. The hump is well-developed in bulls. The dewlap is thin and pendulous and starts from right under the chin and continues right down to the brisket.

The barrel is broad and deep. The sheath is short and moderately tight. Limbs are light. The tail is long, ending in a white switch.

The cattle of this breed are very active and thrive on grazing only. The bullocks are good for light draft and quick, light transport. The cows are poor milkers.

It is estimated that these cattle start work when they are about 4 years of age and weigh about 600 pounds. It is claimed that a pair of bullocks can haul about 1.5 tons of load in a cart to a distance of 30-35 miles in a day traveling at times 3 to 4 miles per hour.

Reference:
Joshi, N.R., Phillips, R.W. (1953) Zebu Cattle of India and Pakistan, FAO Agriculture Studies No. 19, Publ. by FAO, Rome, 256 pp.

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KARAN FRIES

The Karan Fries were developed in India at the National Dairy Research Institute at Karnal. The breed was developed using Holstein (Friesian) and Tharparkar. The percentage of Holstein in the breed ranges from 3/8 to 1/2 of the breeding.

Reference:
Mason, I.L. 1996. A World Dictionary of Livestock Breeds, Types and Varieties. Fourth Edition. C.A.B International. 273 pp.

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UMBLACHERY

Also Known By: *Jathi madu, Mottai madu, Southern Tanjore, Therkuthi madu*

The Umblachery is found in the region of Thanjanvur, Tamil Nadu in India. It is a draft breed of the zebu type, similar to Kangayam but smaller. They are grey with white points and back-lines. Calves are red or brown with white markings. The breed is rare.

Reference:
Mason, I.L. 1996. A World Dictionary of Livestock Breeds, Types and Varieties. Fourth Edition. C.A.B International. 273 pp.
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VECHOOR

The following news article gives the features of the Small Cow of Kerala and the efforts to it from extinction as down-loaded from the following web-site

http://www.indiainfo.com/news/2000/05/28/cow

Kerala varsity saves cow from extinction
K S Nair

May 27, 2000, 16:42 Hrs (IST)

Thrissur: The Kerala Agriculture University here has gained international attention by saving the world's smallest cattle of Kerala origin, the "vechoor cow" from near extinction.

Known for its high milk yield, fat content and disease resistance, the cow was very popular and abundant in central Kerala till 1960 when the State government took up intensive cross-breeding of native cows with imported exotic bulls for increasing the milk yield.

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This was followed by the enactment of the Kerala Livestock Act, 1961, prohibiting maintenance of indigenous bulls, resulting in the Vechoor cattle reaching near extinction by the 1980s.

It took another decade for the people to realise and attempt to remedy the situation. Accordingly, the Vechoor Cow Conservation Project was started in 1990 by the University with the assistance of the Indian Council of Agricultural Research (ICAR). At present, a nucleus stock of about 135 cows and bulls having a maximum hump level height of 105 cms and weighing an average 107 kg, are thriving at the University's cattle farm here.

The Vechoor cow, credited to having the highest milk yield, calculated in proportion to its body weight and very low feed requirments, is listed as a 'distinct breed' among the 30 breeds of Indian cattle under the ICAR's latest calendar on 'cattle breeds of India' published by the National Bureau of Animal Genetic Resources.

It has also earned recognition from the Food and Agriculture Organisation (FAO), which has listed the 'Vechoor cow' among the Indian breeds in its domestic animal diversity information system.

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Annex VII (2)

Paragraph 4.2.1

Breed-wise List of Government and other institutional farms where important indigenous breeds are conserved and propagated

Indigenous Breeds

Amritmahal

Karnataka
- Govt. of Karnataka: Ajjampur, Hessarghatta

Deoni

Andhra Pradesh
- Deoni Cattle Breeding Farm, Gudgaripalli
- Govt of Andhra Pradesh, Kampasagar

Karnataka
- Univ. of Agricultural Sciences, Dharwad

Maharashtra
- Govt. of Maharashtra, Udgir
- Marathwada Agril University, Parbhani

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Gaolao

Maharashtra
- Central Breeding Institute, Hetikundi
- Govt of Maharashtra: Hetikundi, Pohara, Yeotmal

Gir

Goa
- Govt. of Goa, Copardem

Gujarat

- Akshar Purushottam Mandir Gaushala, Gondal
- BAIF-Magazari Farm, Zamp
- Bochasanwasi Shree Akshar Purus-hottam Gaushala Trust Bochasan
- Govt of Gujarat, Dhoraji
- Gujarat Agril University, Junagadh
- Lok Bharti Gaushala, Sanosara
- Sabarmati Ashram Gaushala, Bidaj

Karnataka

- Govt of Karnataka: Koila

Madhya Pradesh

- Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur
- Kasturbagram Krishi Kshetra, Indore
- Raymond's Embryo Research Centre, Gopalnagar

Maharashtra

- Mumbai Gow-Rakshak Mandali, Mumbai
- Mumbai Panjrapol, Mumbai
- Govt. of Maharashtra: Jath, Kopergaon
- Mahatma Phule Krishi Vidyapeeth, Rahuri
- Panjrapol Sanstha Sangli, Sangli
- Shree Nasik Panchvati Panjrapol, Nasik

Rajasthan

- Govt. of Rajasthan, Dag

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Hallikar

Karnataka

- Govt. of Karnataka: Hessarghatta, Koila

Hariana

Assam

- Govt. of Assam: Barpeta, Guwahati, Jagduar, Khanikar, Manja, Pachmile

Bihar

- Birsa Agril Univ, Ranchi
- Govt. of Bihar: Dumraon, Purnea, Sairakela
- Shri Gaushala, Bhagalpur

Haryana
- Government Livestock Farm, Hisar
- Haryana Agril University, Hisar
- Shri Gaushala Society, Panipat
- State Cattle Breeding Farm, Hisar

Madhya Pradesh
- Govt. of Madhya Pradesh: Imlikhera, Kiratpur, Minora, Pakaria

Maharashtra
- Bull Rearing Centre, Nagpur
- Govt. of Maharashtra: Hetikundi, Kopergaon
- Punjabrao Krishi Vidyapeeth, Warud

Orissa
- Govt. of Orissa: Bolangir, Boudh, Chiplima, Keonjhar

Rajasthan
- Govt. of Rajasthan, Kumher

Uttar Pradesh
- Govt. of Uttar Pradesh: Babugarh, Hastinapur, Neelgaon, Saidpur
- Mathura Vrindaban Hasanand Gochar Bhumi Trust, Mathura

Kankrej

Gujarat
- BAIF-Magazari Farm, Zamp
- Bidda Pinjrapole & Gaushala, Mandvi
- Bochasanwasi Shree Akshar Purush-ottam Gaushala Trust, Bochasan
- Govt. of Gujarat: Bhuj, Mandvi, Thara
- Gujarat Agricultural University, Anand
- Mansa Gaushala Trust, Vijapur

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Khillari

Karnataka
- Govt. of Karnataka, Bankapur

Maharashtra
- Govt. of Maharashtra: Hingoli, Jath, Junoni

Malvi

Madhya Pradesh
- Govt. of Madhya Pradesh, Agar

Rajasthan
- Govt. of Rajasthan, Dag

Nagori

Rajasthan
- Govt. of Rajasthan, Nagour

Nimari

Maharashtra
- Govt. of Maharashtra, Bod

Ongole

Andhra Pradesh
- AP Agricultural University, Guntur
- Govt. of Andhra Pradesh: Kakinada, Kampasagar, Mahanandi, Vishakhapatnam
- Ongole Cattle Breeding Farm, Ramathirtham
- Ongole Cattle Breeding Project, Guntur Rathi

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Kerala
- Govt. of Kerala, Maruthamala

Maharashtra
- Govt. of Maharashtra, Hingoli

Rajasthan
- Govt. of Rajasthan, Nohar
- SKN College of Agriculture, Jobner
- College of Veterinary and Animal Science, Bikaner

Uttar Pradesh
- GB Pant Univ. of Agri & Tech, Pantnagar

Red Sindhi

Assam
- Govt. of Assam: Barpeta, Jagdaur, Silchar
- Indo-Australian Cattle Breeding Project, Barpeta

Bihar
- Govt. of Bihar, Gouikarma

Goa
- Govt. of Goa, Dhat

Jammu & Kashmir
- Govt. of Jammu & Kashmir, Beli Charana

Karnataka
- Govt. of Karnataka: Koila

Kerala
- Govt. of Kerala, Kodapanakunnu

Lakshadweep
- Government Dairy Unit, Kavaratti

Maharashtra
- Punjabrao Krishi Vidyapeeth, Warud

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Orissa
- Central Cattle Breeding Farm, Basantpur
- Govt. of Orissa, Bolangir

Tamil Nadu
- Govt. of Tamil Nadu: Chettinad, Hosur, Orthanad, Pudukkottai, Tirunelveli

Uttar Pradesh
- Govt. of Uttar Pradesh, Kalsi

Sahiwal

Assam
- Govt. of Assam: Jagduar, Pachmile, Silchar

Delhi
- Indian Agricultural Research Institute

Gujarat

- Sabarmati Ashram Gaushala, Bidaj

Haryana

- Government Livestock Farm, Hisar
- National Dairy Research Institute, Karnal
- Shri Gaushala Society (Regd), Panipat
- State Cattle Breeding Farm, Hisar

Jammu & Kashmir

- Govt. of Jammu & Kashmir: Beli Charana

Madhya Pradesh

- Govt. of Madhya Pradesh, Anjora
- Raymond's Embryo Research Centre, Goplanagar

Maharashtra

- Govt. of Maharashtra, Bod, Wadsa

Punjab

- Amritsar Pinjrapole Gaushala, Amritsar
- Govt. of Punjab: Nabha
- Punjab Agricultural University, Ludhiana

Tamil Nadu

- Tamil Nadu Cooperative Milk Producers Federation Ltd, Udhagamandalam

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Uttar Pradesh

- GB Pant Univ of Agri & Tech, Pantnagar
- Govt. of Uttar Pradesh, Chak-Ganjaria
- Military Dairy Farm, Meerut
- Project Directorate on Cattle, Meerut

Sunandani

Kerala

- Kerala Livestock Development Board, Mattupatti

Tharparkar

Andhra Pradesh

- Govt. of Andhra Pradesh: Kampasagar, Karimnagar, Mamnoor

Bihar

- Birsa Agril Univ, Ranchi
- Govt. of Bihar: Purnea, Sairakela

Haryana

- Government Livestock Farm, Hisar
- National Dairy Research Institute, Karnal

Maharashtra

- Govt. of Maharashtra, Pohara, Yeotmal

Rajasthan

- Central Cattle Breeding Farm, Suratgarh
- Govt. of Rajasthan, Chandan

Tamil Nadu

- Govt of Tamil Nadu, Chettinad

Uttar Pradesh

- Central Cattle Breeding Farm, Lakhimpur
- Govt of Uttar Pradesh, Bharari

(Source: http://www.indiadairy.com/tech_list_geniticsbreeding.html)

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ANNEX VII(3)

Paragraph 4.2.1

Breed-wise list of Government and other institutional farms where exotic and cross-bred cattle are being maintained and developed

Exotic Cattle Breeds

Holstein-Friesian

Andhra Pradesh

- AP Agricultural Univ, Guntur
- Govt of Andhra Pradesh: Kampasagar, Reddipalli
- IDL Rural Dev Trust, Hyderabad

Arunachal Pradesh

- Govt of Arunachal Pradesh: Siang, Soro, Tezu, Warjung, Yazali

Bihar

- Birsa Agricultural University
- Exotic Cattle Breeding Farm, Patna
- Krishi Gram Vikas Kendra, Ranchi

Delhi

- Indian Agricultural Research Institute

Gujarat

- Amul Research & Dev Association, Ode
- BAIF-Magazari Farm, Zamp
- BAIF Rural Inst for Socio-Economic Reconstruction, Kadod
- Gujarat Agricultural University, Anand
- Kaira Dist Coop Milk Producers' Union, Kanjari
- Lok Bharti Gaushala, Sanosara
- Sabarmati Ashram Gaushala, Bidaj

Haryana

- Haryana Agricultural Univ, Hisar
- Haryana Dairy Dev Coop Fed, Bhiwani
- National Dairy Research Institute, Karnal
- Shree Gaushala Trust, Bhiwani

Himachal Pradesh

- Govt. of Himachal Pradesh: Baghthan, Bhagrotu
- Indo-German Cattle Breeding Farm, Bhagrotu

Jammu & Kashmir

- Govt. of Jammu & Kashmir, Beli Charana

Karnataka

- Central Cattle Breeding Farm, Hessarghatta
- Govt. of Karnataka: Hessarghatta, Koila
- National Dairy Research Inst, Bangalore
- Univ of Agricultural Scs, Dharwad

Kerala

- Govt. of Kerala, Maruthamala

Madhya Pradesh

- Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur
- Raymond's Embryo Research Centre, Gopalnagar

Maharashtra

- BAIF Development Research Foundation, Uruli Kanchan
- Mumbai Gow-Rakshak Mandali, Mumbai
- Development Corpn of Konkan, Mumbai
- Mahatma Phule Krishi Vidyapeeth, Rahuri
- Marathwada Agril University, Parbhani
- Shree Nasik Panchvati Panjrapol, Nasik

Punjab

- Govt. of Punjab, Patiala
- Punjab Agril Univ, Ludhiana
- Punjab State Coop Milk Producers' Federation, Bhattian
- Sutlej Bed Bet Farm, Ropar

Rajasthan

- SKN College of Agriculture, Jobner

Tamil Nadu

- Govt. of Tamil Nadu: Hosur, Ootacamund
- Tamil Nadu Coop Milk Producers Fed Ltd, Udhagamandalam
- United Planters Assn of Southern India, Coonoor

Uttar Pradesh

- Central Cattle Breeding Farm, Lakhimpur Kheri
- Durga Agro Farms Ltd, Gorakhpur
- Hindustan Livestock Sales Corpn, Dehradun
- Project Directorate on Cattle, Meerut

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West Bengal

- Don Bosco Agriculture, Krishnanagar
- Govt. of West Bengal: Hainghatta, Kurseong, Salboni, Suri
- St Mary's Farm, Kurseong

Jersey

Andhra Pradesh

- AP Agricultural Univ, Guntur
- AP Dairy Dev Coop Fed Ltd, Nekarikallu
- Govt. of Andhra Pradesh, Banavasi

Arunachal Pradesh

- Govt. of Arunachal Pradesh: Pasighat, Siang, Soro

Assam

- Indo-Australian Cattle Breeding Project, Barpeta
- Govt. of Assam: Berhampur, Guwahati, Jagdaur, Manja, Pachmile, Silchar

Bihar

- Govt. of Bihar, Gouriakarma
- Exotic Cattle Breeding Farm, Patna
- Krishi Gram Vikas Kendra, Ranchi
- Shri Gaushala, Bhagalpur

Goa

- Govt. of Goa, Dhat

Gujarat

- BAIF-Magazari Farm, Zamp
- BAIF Rural Inst for Socio-Economic Reconstruction, Kadod
- Gujarat Agril University, Anand
- Lok Bharati Gaushala, Sanosara
- Sabarmati Ashram Gaushala, Bidaj

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Haryana

- Dept of Animal Husbandry, Bhiwani
- Shri Gaushala Trust, Bhiwani
- Shri Gaushala Society (Regd), Panipat
- State Cattle Breeding Farm, Hisar

Himachal Pradesh

- Govt of HP: Kamand, Kothipura
- Indo-German Cattle Breeding Farm, Bhagrotu
- Indo-New Zealand Project, Palampur
- Jersey Cattle Breeding Farm, Palampur

Jammu & Kashmir
- Govt. of Jammu & Kashmir, Beli Charana

Karnataka
- Govt. of Karnataka: Koila, Puttur
- State Livestock Breeding & Trg Centre, Hessarghatta

Kerala
- Govt. of Kerala: Kodapanmakunnu, Maruthamala

Madhya Pradesh
- Govt of MP: Bhadlbhada, Gadi, Imlikheda, Minora, Pakaria, Sarkanda
- Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur
- Madhya Pradesh Dugdha (Sahakari) Maryadit, Bhopal
- Raymond's Embryo Research Centre, Gopalnagar

Maharashtra
- BAIF Dev Res Foundation,Uruli Kanchan
- Mumbai Gow-Rakshak Mandali, Mumbai
- Bull Rearing Centre, Nagpur
- Development Corpn of Konkan, Mumbai
- Exotic Cattle Breeding Farms: Harsool, Tathwada
- Govt of Maharashtra: Bod, Hingoli, Jath, Kopergaon, Pohara,Wadsa, Yeotmal
- Mahatma Phule Krishi Vidyapeeth, Rahuri
- Panjrapol Sanstha Sangli, Sangli

Meghalaya
- Govt of Meghalaya, Kyrdemkulai

Orissa
- Central Cattle Breeding Farms: Basantpur, Sunabeda

Punjab
- Govt of Punjab: Patiala, Ropar
- Punjab State Coop Milk Producers' Federation, Bhattian

Rajasthan
- Rajasthan Coop Dairy Federation, Bassi
- SKN College of Agriculture, Jobner

Sikkim
- Livestock Farm, Tadong

Tamil Nadu

- Govt of Tamil Nanu: Hosur, Ooty, Orthand, Pudukottai, Tirunelveli, Eachenkottai
- Madras Christian College Farm, Madras
- Sheep Farm, Chinnasalem
- Tamil Nadu Coop Milk Producers Fed Ltd, Udhagamandalam

Uttar Pradesh

- Bull Mother Farm, Literacy House, Lucknow
- Govt of Uttar Pradesh: Babugarh, Bharari, Chak Ganjaria, Kalsi
- Hindustan Livestock Sales Corpn
- Pradeshik Coop Dairy Fed: Moradabad, Rae Bareli

West Bengal

- Bull Mother Farm, IIT, Kharagpur
- Cattle Breeding Farm, Haringhatta
- Don Bosco Agril Centre, Krishnagar
- Govt of West Bengal: Haringhatta, Kalyani, Kurseong, Pedong, Ranjitpur, Salboni, Suri

Cross-breeds

Karan Fries

Haryana

- National Dairy Research Institute, Karnal

Karan Swiss

Haryana

- National Dairy Research Institute, Karnal

Red Dane

Karnataka

- Govt of Karnataka, Koila
- Indo-Danish Cattle Breeding Farm, Hessarghatta

(Source: http://www.indiadairy.com/tech_list_geniticsbreeding.html)

ANNEX VII (4)

Paragraph 6.2

Summary of answers received from the State Departments in reply to the questions on Breeding, from the Commission's questionnaire

Extracts from questionnaire

QUESTIONS ON BREEDING

19. Does the State have a breeding policy for cattle? If so, please list its salient features. Attach a copy of the Policy document, if any.

20. Is the breeding policy tilted in favour of increasing the number of buffaloes in relation to that of the cattle?

21. Do you feel that farmers find it more profitable to keep buffaloes? If so, what do you think are the reasons? Is it because of the higher fat content of buffalo milk or the fact that buffaloes can be slaughtered for the meat and hides or both?

22. What are the major indigenous breeds of cattle prevalent in the State?

23. List the major features, strong points and parameters like milk yield, breed-wise.

24. Has there been a decline in the numbers of any of these breeds? Have any breeds become extinct or are nearing extinction? If so, name them, with numbers to show this finding.

25. What are the reasons for the decline, if any, in the numbers of indigenous breeds? What could be done to conserve and protect these breeds?

26. Is the State participating in the recently launched National Project of Cattle and Buffalo Breeding of the Central Government? If so, what are the projections / targets etc. envisaged? Please give details for cattle and buffalo separately.

27 Do you feel that the Project will fulfill its objectives? Have you any suggestions for improving the procedures, delivery systems and implementation of this Project.

28. Do you feel that artificial insemination is the best way of conserving or propagating indigenous breeds? What do you believe are the comparative advantages of artificial insemination over natural service or vice versa?

29. Do you believe that India should conserve its indigenous breeds (which have lower productivity but higher resistance to disease) rather than go in for massive cross-breeding with foreign strains to increase the milk-yield per animal, even though these breeds have less resistance to disease?

30. Do you feel that Integrated Livestock Projects, where farmers or farmers' groups maintain different species of animals such as cows, buffaloes, goats, sheep, poultry is a good measure for income generation, poverty alleviation in rural areas?

ANSWERS OF STATE GOVERNMENTS

1. Andhra Pradesh

19. The State has a defined Breeding Policy. In cows, Ongole and Deoni Breeds are used in the breed tracts of these breeds. In other places, cross-breeding through Jersey and Holstein-Fresian breeds is being practiced. There is a directive that the cross-bred cows are to be mated only with cross-bred bulls.

The exotic blood levels are maintained at 50% level. Where the farmers are insisting, more exotic blood level is being provided to maintain a maximum 62.5%.

Major features of the breeding policy are:

Coastal Area (North)

- Jersey bulls are mated to non-descript cows
- Jersey cross-bred bulls (50% exotic) are mated with Jersey cross-bred cows.

Coastal Andhra (Delta, South)

- HF bulls are mated with non-descript and Ongole-type cows in Delta areas
- HF cross-bred bulls (50% exotic) are mated with HF cross-bred cows.
- Jersey bulls are mated with indigenous cows in upland areas.
- Jersey cross-bred bulls are mated with Jersey cross-bred cows.
- Ongole bulls are mated with Ongole-type cows in Ongole tract.

Rayalseema

- Jersey bulls are mated with indigenous cows
- Jersey cross-bred bulls are mated with Jersey cross-bred cows.
- Ongole bulls are mated with Ongole-type cows in parts of Kurnool and Cuddapah Districts

Telengana (except Medak District)

- Jersey bulls are mated with indigenous cows
- Jersey cross-bred bulls are mated with Jersey cross-bred cows.
- HF bulls are mated with cows in Hyderabad city and surrounding areas
- HF cross-bred bulls (50% exotic) are mated with HF cross-bred cows.

Medak District
- HF bulls are mated with non-descript cows
- HF cross-bred bulls (50% exotic) are mated with HF cross-bred cows
- Deoni bulls are mated with Deoni-type cows in Zahirabad and Narayan Kher Taluks.

Tribal Areas
- Jersey cross-bred bulls are used for natural service.
- Deoni bulls are used for pure breeding in selected areas

Areas with better management levels

- Jersey cross-bred bulls (75% exotic) are mated with Jersey cross-bred cows (50%)
- HF cross-bred bulls (75% exotic) are mated with HF cross-bred cows (50%).

20. No. The Breeding policy of Andhra Pradesh, specifies the use of Jersey, HF and Murrah (buffalo) basing on the existing cattle and buffalo population in the entire State. It does not specify to increase the buffalo population.

21. Yes. The farmers feel it profitable to maintain buffaloes as compared to cattle because of the following reasons:
    a) The consumption of buffalo milk is preferred in majority of the areas of the State as compared to the cows milk
    b) Since the price being paid by the collection centres is mainly on the basis of the fat content, buffalo milk which is richer in fat fetches more remuneration.
    c) Once the productivity of the buffalo is lost due to old age or any other defect, it can be slaughtered and used for meat purposes.

22. The major indigenous breeds of Andhra Pradesha are Ongole and Punganur. In some parts of Telengana region, the Deoni breed is prevalent.

23. Ongole is specially developed by the farmer for heavy ploughing of the hard black cotton soil and heavy transport work. The breed has fair milk potential but the same was not fully exploited. But certain areas in the breeding tract have Ongole cows yielding between 14-17 litres per day as revealed from the records of milk-yielding competitions. The average milk yield of Ongole is 2-3 litres per day, cross-bed cows is 6-8 litres.

24. There is a decline in Ongole pure-bred population and Punganur breed is almost vanished.

25. Famous Ongole cattle in the earlier period had good milk potential and were more resistant to many of the diseases. Such breeds have undergone certain changes in their physical structures and the milking potential has also reduced. With expansion of irrigation facilities in Krishna and Godavar Deltas in 19th and early 20th centuries, the cattle population in the above districts has been replaced gradually by buffalo population. With the introduction of Virginia tobacco in Guntur and Prakasam areas, the Ongole population was slowly depleting and now, with land reforms and extensive introduction of commercial crops like cotton, sugar cane and mechanisation, the rearing of Ongole cattle has received a set-back and gradually is becoming uneconomical. Social changes like land reforms, cropping patterns also contributed to such decline.

In order to improve the breed characteristics of Ongole cattle and to preserve the germplasm, the A.P. State Government has started the breeding activities through A.I. under Frozen Semen Technology. During the survey conducted by the A.P. Livestock Development Agency in 2001, it was revealed that only about 15,000 pure Ongole breedable cows are available in the State in their native tract. Four livestock farms, - two under the State Government (Chintal Devi and Ramathirtham) and two under Acharya N.G.Ranga Agriculural University (Guntur and Mahanandi) - are functioning for breed developmental activities to evolve best germplasm to utilise the areas of the breeding tract and its surroundings.

Ongole Frozen Semen is being produced at the Bull Stations at Nandyal and Karimanagar, which are under APLDA and this semen is available in 1700 AI centres out of existing 4500 centres.

There is a need to improve the Ongole population in an intensive manner by:

- Establishing Ongole Development Agency / Association or Ongole Breeders Association and sufficient finances given for taking up devlopmental activities.
- Herd Registration of Ongole animals has to be taken up and the registered animals should be provided with all facilities apart from proper nutritional care.
- Ongole cattle shows should be conducted at district, regional and State levels and farmers should be encouraged to breed Ongole cattle with best pedigree.
- Embryo Transfer Technology (ETT) and AI has to be introduced for a faster development of Ongole cattle.
- With the versatility of Ongole and their spread to so many countries on different continents, it would be beneficial to link up the research activities carried out in different countries and bring them within a network coordinated by an international organisation such as FAO.
- Calf-rearing scheme for Ongole breed has to be introduced.

26. The State is participating in the NPCBB Project. APLDA has started functioning in the State from April 2000. Rs.40.03 crores has been sanctioned for the 5 year period of the Project.

27. The Project will definitely fulfill its objectives once the sufficient amount for the project is released for its infrastructural development.

28. AI is the best means for propagating indigenous breeds. One outstanding bull of an indigenous breed can contribute approximately 8000 –10000 doses of frozen semen in a year and about 50,000 to 1 lakh doses in its lifetime. The coverage of cows with AI will be much more as through natural service one bull can service only 100 to 150 cows.

29. It is essential to conserve indigenous breeds by implementing selective breeding. When compared in terms of the feed conversion ratio, indigenous breeds and cross-breds are almost similar. However, the disease resistance is more in indigenous breeds, as compared to cross-breds with more than 50% exotic blood levels. Hence, the exotic blood level should be maintained at 50% during inter-se mating.

30. Integrated Livestock Projects are more useful to the farmers, mainly because 80% of the farmers are small, marginal and landless labourers, who depend upon livestock rearing for their livelihood.

2. Assam

19. Yes. The State has a breeding policy since 1953 under Key Village Scheme in which attempts are made to improve the genetic merit of non-descript indigenous cattle through introduction of Indian breeds viz. Sindhi, Hariana and Sahiwal. Under the Integrated Cattle Development Project (ICDP) launched in 1968, the cattle breeding policy was revamped, in conformity with the national policy for upgrading of indigenous and non-descript cattle by cross-breeding with Jersey breed. This policy was further modified in 1980 through which generation of a cattle population with 50% Jersey, 25% Sindhi and 25% local blood was attempted. The policy was not very successful and the State Government is preparing a new policy for cattle breeding.

20. No.

21. No. In Assam, the farmers feel that cattle and buffaloe are equally profitable to keep. For dairy purposes, farmers prefer cattle and for agricultural work to be carried out in wetlands, they prefer buffaloes. The Assam buffaloes are of swamp-type and their milk yield (2.0 kg per day) is not at par with improved cattle breeds.

22. Indigenous cattle of Assam are non-descript.

23. Average milk yield of non-descript cows is 1.25 kg per day. Cross-breds yield about 5.5 kgs per day.

24. Does not arise.

25. Does not arise.

26. Yes. Proposal aims to bring under AI, 50% of the non-descript cattle population, to provide improved AI services at the farmer's door-step, to increase the existing semen production capacity (qualitatively as wells as quantitatively), to improve existing training facilities to technicians and professionals, to increase milk production in the State upto 1000 million litres in the next 5 years.

27. Yes. The Project will fulfill the present need of the State.

28. Yes. AI is the best way to conserve and propagate indigenous breeds. By adopting AI techniques, apart from propagating indigenous breeds, improvement of the breeds, generation after generation, can be brought about by way of sire selection. Few best-of-the-best sires, selected through progeny-testing programmes, can be extensively used for artificial insemination to bring about genetic improvement, which is seldom possible in natural servicing.

29. Improved indigenous breeds with proven production potential should be conserved. Cross-breeding should however be used extensively in areas where native cattle are non-descript and poor producers.

30. Yes. In Assam, the individual farm-holdings are generally very small therefore Integrated Livestock Management Systems will be suitable for poverty alleviation.

3. Bihar

19. In rural areas, cross-breeding upto 50% with exotic breeds and upgradation of cattle by using Tharparkar and Haryana bulls is done. Breeding policy for the different regions is as follows:

- Cross-breeding of native animals with Jersey / Fresian to be limited to urban, suburban ICDP areas and industrial belts of the State.
- In rural areas, cross-breeding is limited to 50% of exotic inheritance.
- Up grading with Hariana and Tharparkar bulls in rural areas of North and South Gangetic Plain.
- Upgrading with Red Sindhi bulls in Chota Nagpur and Santhal Parganas.
- Selective Breeding in pure breed animals to produce bulls of germplasm to go on in all Government Cattle and Buffalo Breeding farms of the State.
- All the breeding programmes are covered through artificial insemination by either frozen or liquid semen.
- Natural breeding is continuing in areas where AI facilities are not available.

20. No. The breeding policy is the same for cattle and buffalo.

21. Farmers prefer buffaloes because of high disease resistance and higher milk prices because of fat content.

22. The major breeds of cattle are Hariana, Tharparkar and Red Sindhi.

23. Bullocks of these breeds are good for agriculure and transportation.

24. No.

25. Does not arise.

26. A proposal has been sent for the consideration of Government of India.

27. Suggestions will be given after implementation if required.

28. Yes.

29. Both conservation of indigenous breeds and cross-breeding with exotic breeds are required.

30. Yes.

4. Goa

19. There is no Breeding policy for the State.

20. Does not arise.

21. Yes. As there is less management problem for buffaloes, buffalo milk has higher fat percentage and fetches higher price and buffaloes can be slaughtered for meat and hides.

22. No breed-specific cattle are prevalent in the State.

23. The animals are non-descript. The females are poor milk yielders and the males are used for draught purposes.

24. There is no specific cattle breed in Goa. Hence, the question of any breed becoming extinct does not arise.

25. Not applicable.

26. No. Goa is not participating in the National Project for Cattle Breeding.

27. Yes.

28. Yes. For following reasons AI is better:

- more animals can be covered
- better germplasm can be used
- cost per service is less
- risk of transmission of disease like brucellosis is reduced or non-existant.
- more scientific and hygienic practices can be used thus preventing uterine infections transmitted by bull.

29. Yes.

30. Yes.

5. Gujarat

19. The salient features of the provisional Breeding policy, under consideration of the State Government are:

- For Pure Breeding, the high yielding animals of Gir Breed, which yield 2000 litres or more per lactation and that of Kankrej, which yield 1500 litres or more per lactation are bred by pure bred bulls. In the areas like Kutch and Banaskantha, where the farmers' economy is dependent on draught animals in the districts of Junagadh and Rajkot, which is home tract of Gir Breed pure breeding with sire of superior merit is encouraged. As the home tract of Gir and Kankrej is Saurashtra and North Gujarat respectively, Gir pure breeding is recommended in Saurashtra and Kankrej in the rest of the State.

- For Cross-breeding policy, it is decided to breed low-producing and non-descript cows by cross-breeding with exotic bulls. Jersey and Holstein are selected as donor breeds. HF is recommended in urban areas for higher milk production. Cross-breeding will be introduced in areas where feed and fodder resources are adequate. Jersey is selected because of medium-size, high fat yield and capacity for withstanding tropical climate. In areas where good irrigation facilities are existing and farmers have preference for higher milk production, HF is recommended for cross-breeding. All the AI centres of the State will provide AI services with pure-bred and cross-bred semen doses.

- It has been decided to have exotic blood level between 50% to 62.5%. F1to be used for breeding should be selected from high-yielding dams and pedigreed sires.

सत्यमेव जयते

20. No. Prevalent State breeding plan has nothing to do with increase in population of cattle or buffalo. The breeding plan is only to increase production, productivity and to maintain pure breeds of cattle and buffalo.

21. Yes. Farmers find it more profitable to keep buffaloes for three reasons, but not for the purposes of meat;
    - Higher fact content in milk
    - Higher production than indigenous cattle
    - Conversion of residual farm produce is more efficient in buffalo than in cattle.

22. The major indigenous breeds are Gir and Kankrej

23. Major features are listed.

24. No breed has become extinct or is facing extinction.

25. Low economic returns from the cattle is the reason for decline in the cattle population or for the static nature of the population. Automation, religious changes in the society and erosion of pasture resources have reduced the sustainability of cattle population. We have to reverse all these changes.

26. Yes. State is participating in the National Project. Proposal has been submitted. Formation of State Implementation Agency is under the consideration of the State Government.

27. Yes. No suggestions at this stage.

28. Yes. Where frozen semen and AI facility is available AI is the best way. In interior areas, where AI facility is not available, natural service, with high-pedigreed bulls is advantageous.

29. Yes. Indigenous breeds need to be preserved. Low yielder and non-descript cattle should be covered under cross-breeding. Animals with 50% exotic blood will not have disease and other problems.

30. Yes. If farmers or farmers' groups are having good milk yielding animals i.e more than 1500 litres per lactation and adequate feed and fodder availability exist, it is a profitable operation. Awareness for modern, scientific animal husbandry practices is useful and the extension efforts are made by the Department.

6. Haryana

19. The salient features of the Breeding policy are:

- Haryana is the repository of the best possible genetic resources of some of the finest indigenous breeds of cattle like Hariana and Sahiwal. The breeding policy for cattle in the State should therefore reflect the need and demand for seed stock and frozen semen of these breeds for the whole of India. The State has to launch a massive genetic upgradation programme for Hariana breed and to a lesser extent for Sahiwal breed.
- As there is a very high demand for cross-bred cows among the farming community, the Hariana cattle population in the State would have to be subjected to a two-pronged breeding policy, enabling the selective breeding of the Hariana breed, while allowing the farmers to use exotic semen on them for production of cross-bred cows, as well.

20. Yes.

21. Yes. Because of higher fat content and high milk yield and shorter dry period and regular breeding, buffaloes are preferred by farmers.

22. The major indigenous breeds are Hariana, Tharparkar and Sahiwal.

23. The main features are given elsewhere.

24. Sahiwal population in India has dwindled and the breed is already an endangered breed, numbering a few thousand in scattered pockets of Haryana and Punjab. Tharparkar and Hariana breeds are under threat and if proper measures are not taken they will also be in danger of extinction. The revival and development of Sahiwal breed should be a collaborative effort between the livestock development boards of the two States and the Central Project authorities in Delhi, with considerable import of seed stock and frozen semen from Pakistan.

25. Less productivity and uneconomical to maintain.

26. Yes. Selective breeding for upgradation of breeds is undertaken under the Project.

27. Yes.

28. Yes.

29. Yes. India should adopt conservation of indigenous breeds through selective breeding for upgradation and should also go for massive cross-breeding with foreign strains for increasing the milk yields.

30. Yes.

7. Himachal Pradesh

19. Keeping in view the necessity for preservation of local germplasm of indigenous hilly Pahari cattle as well as for the upgradation of hilly cattle, Himachal Pradesh Government has decided to limit the exotic inheritance of Jersey and HF blood to 50% level and hilly cattle will contribute the remaining 50% inheritance. This will ensure the benefit of higher production potential of exotic breeds and disease resistance and hardiness traits of the hilly cattle to the farmers of the State.

20. No. On the contrary, new breeding policy in respect of cattle and buffalo in HP discourages the buffalo rearing.

21. In the lower areas of Himachal Pradesh, i.e. plain areas, people find it more profitable to rear buffaloes because of the higher fat content in buffalo milk and it fetches more price in the market. However, farmers in the mid and high hills of the State definitely have a preference for rearing cross-bred cows.

22. There is no recognised indigenous breed in the State. However, non-descript hilly cattle are being reared in the State.

23. Major features of hilly cattle are short stature, low body weight, horned, muscular in composition, swift and sure in hilly terraine, and hardy and disease-resistant. Milk yield is 1-2.5 litres per day.

24. No.

25. Not applicable

26. The HP sub-Project worth Rs. 22.64 crores is under active consideration with Government of India, which envisages 100% of breedable cows by providing doorstep delivery of insemination services. Wherever it is not feasible, natural service will be provided.

27. Yes.

28. Yes. AI will provide more coverage of breedable population in the shortest possible time and efficient utilisation of high-pedigreed germplasm resources within the State.

29. Yes. Recognised Indian breeds should be preserved.

30. Yes.

8. Jharkhand

19. The State is yet to decide its own breeding policy. The breeding policy of this region prevailing before the reorganisation of the State is existing. The policy is to upgrade the rural cattle through Red Sindhi located in urban, suburban and industrial areas. Also, cross-breeding with Jersey and HF will be done.

20. The breeding policy is not tilted in favour of increasing the number of buffaloes in relation to that of cattle.

21. Farmers find it more useful to keep buffaloes neither due to their higher fat content of milk, nor due to their slaughter value but due to its usefulness as draught animals.

22. Major cattle breeds are not prevalent in the State. Only local desi cattle are available.

23. Does not arise.

24. Livestock census has not been undertaken since last 20 years, neither has any study been conducted by the Government. Therefore, no positive estimate is available.

25. Not applicable.

26. The Government has submitted a proposal for NPCBB at an estimated cost of Rs. 23.668 crores.

27. The project will fulfill its objectives.

28. Artificial insemination is the best way of conserving or propagating indigenous breeds. Natural service requires large number of quality bulls which are not available, one bull can serve very limited number of cows. Natural service also lacks mobility, therefore, large number of breedable population cannot be served.

29. Conservation of Indian breeds is useful. Although Jharkhand is not the homeland of organised Indian breeds such as Hariana, Tharparkar, Red Sindhi etc. but their performances have been found to be very satisfactory, under various agro-climatic conditions. However, to increase the production of milk, not more than 50% of foreign blood is to be permitted in cross-breeding.

30. Yes, it is true.

9. Karnataka

19. The objectives of the breeding policy are:

- to produce economically producing milch cattle in large numbers.
- to combine productivity and adaptibility including draughtability to meet the local requirements.
- conservation and improvement of indigenous germplasm.

20. No.

21. Yes. Low input, high disease resistance and high fat content in milk are the reasons why farmers find it more profitable to keep buffaloes.

22. The major breeds of indigenous cattle in the State are Amritmahal, Hallikar, Khillar, Deoni and Malnad Gidda.

23. All the above breeds are known for their draught qualities and disease resistance. They are poor milkers.

24. Amritmahal breed has declined in its numbers. Presently there are 40,206 females and 30,989 males according to the 1997 livestock census.

25. Lack of grazing facilities due to encroachment of Gomal lands and poor maintenance of existing grazing lands, lack of breeding services, unwillingness among the present generation of farmers to work with bullocks, low milk yield potential are some of the reasons for the decline in cattle numbers. Improved infrastructure facilities to provide breeding services at farmer's doorstep, improve the breeds with milk traits are some of the measures to conserve the breeds.

26. No answer

27 No answer

28. AI is an effective tool for conservation and propagation of indigenous breeds of cattle. The advantages are:

- bulls of merit can be used to produce large number of progenies
- vast areas can be covered under AI
- effective doorstep services can be provided

29. India should conserve its indigenous breeds with improvement in its milking potentials. If Disease Free Zones could be created, local non-descript cattle can be subjected to cross-breeding with disease-free foreign strains not to exceed 50% exotic blood inheritance for improved milk production.

30. Yes.

10. Kerala

19. The salient features of the breeding policy are:

For genetic improvement:

- Jersey and HF to be used as exotic donors. However, Jersey and its cross-breeds will be used in large proportions.
- Level of exotic inheritance is to be limited to 50%.
- Genetic selection of bull-mothers
- 20% of exotic bull-stock to be replaced annually.
- Use of embryo transfer Technology
- Elimination of genetically-poor female stock

For breeding operations

- One AI centre for every 500 cross-bred cows
- Mobile AI at the doorstep of farmers
- Control of bulls for natural service

Management improvement

Research and Development should be encouraged

20. No. The population of buffaloes is constantly on the decline in Kerala. Breeding policy aims to increase buffalo population also.

21. Yes. High fat content of buffalo milk and increased disease resistance are the reasons.

22. Indigenous breeds of cattle identified in Kerala are Vechoor and non-descript cattle such as Kesargode, Vadahara and Highrange dwarfs.

23. The Vechoor characteristics are:
    - Average weight of female is 130 kgs and males 170 kgs.
    - Height below 90 cms.
    - Hump is present.
    - Tail almost reaches the ground.
    - Average milk yield is 2-3 kgs per day with fat % of 4.7 to 5.3%
    - They are more resistant to Foot and Mouth disease.

24. Yes. Non-descript cattle were converted gradually to cross-breds by adoption of Kerala's breeding policy. A small number of Vechoor cattle have been preserved at the Kerala Agriculture University Farm at Thrissur.

25. Low production, increased demand for milk, commercialisation of dairy business, lack of adequate programme for preservation of indigenous breeds etc. However, the good qualities like disease resistance and adaptability to climatic conditions are being exploited for conversion to cross-bred progenies.

26. Yes. The Kerala Livestock Development Board has been nominated as the State Implementing Agency.

27. Yes. Coordinated efforts of all agencies in the livestock sector are essential for the timely implementation of the programme envisaged under the Project.

28. Yes. Better productive use of superior breeding bulls. AI uses deep frozen semen after long time. Preservation of genetic material.

29. Yes. State must preserve its indigenous breeds at certain level and cross-breeding may be adopted with Research and Development.

30. Yes.

11. Madhya Pradesh

19. The salient features of the breeding policy are:

- selective breeding in the home tracts of indigenous breeds -- Malvi, Nimari and Kanketha
- Upgradation of non-descript cattle by proven Indian breeds
- Cross breeding of non-descript cattle by exotic breeds like Jersey and HF
- In cross-breeding exotic blood level to be maintained at 50%

20. No. Equal importance is given to cross-breeding of cattle and buffaloe in the breeding policy.

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21. Yes. Farmers find buffaloes are more profitable due to higher fat content and higher sale price of milk. Buffaloes are also slaughtered for their meat purpose.

22. Malwi is found in Malwa region, Nimari in Nimar region, Kankatha in Kan valley Ajai garh Tehsil of Panna and Chattarpur Districts.

23. Kankatha is found in Ajaigarh Tehsil of Panna district and is famous for draught qualities, in rocky and hilly areas. They are gray to dark-grey in colour. Animals are small and sturdy and are generally good in work.

24. There is no breed-wise cattle census in the State. Overall there is no decline in cattle numbers.

25. There is no decline in the numbers of indigenous breeds. But in order to conserve these indigenous breeds in their home tracts, the controlled cattle breeding programme is implemented through selective breeding, AI technique and identification of local herds of indigenous breeds and promotion of ETT.

26. Yes. All the districts will be covered in a phased manner in the five years of the project. M.P. Livestock Development Corporation has been designated as the nodal agency.

27. It is expected that the objectives will be fulfilled. However, some suggestions are as follows:
    - there should be forward linkage with the other programmes, like specific livestock development programme. Certain amendments should be made to include all the cattle-owners having cross-bred calves in this programme.
    - Fodder development programmes should be incorporated with Cattle breeding programmes.
    - There should be independent identity of the nodal agency.
    - The project should get the status of National programme, hence involvement, coordination and funding should be obtained from other Departments.
    - Most emphasis should be given for strong AI network, uninterrupted supply of liquid nitrogen and quality semen through established cold chains.

28. Although AI is the best way to propagate the breed because it requires lesser numbers of progeny-tested bulls, natural service in remote and inaccessible areas should also be continued simultaneously.

29. Definitely yes. In the State cattle breedin policy, upgradation of local non-descript breed with Sahiwal, Tharparkar and Hariana is included. Selective breeding with pure indigenous cattle breeds is also recommended in their respective home tracts.

30. Yes. However, such Integrated Livestock Development Projects have to be planned so that they are feasible and viable in the State. Therefore, selection of beneficiaries, locations, species, breeds and marketing facilities should be ensured carefully to achieve the level of development of rural areas.

12. Maharashtra

सत्यमेव जयते

19. Yes. The salient features of the Breeding Policy are:

    - In most of the areas of the State where there is no irrigation facility as well as drought-prone area programme, Jersey Bulls should be used for cross-breeding of cattle, except in the home tracts of the indigenous breeds.
    - In areas of adequate irrigation facilities, where there will not be fodder shortage and good-quality fodder availability is assured, Holstein-Fresian bulls should be used for cross-breeding.
    - Exotic blood levels are to be maintained at 50% level in non-irrigated areas and at 50 - 62.5% in irrigated areas.
    - In the breeding tracts of Gaolao, Khillari, Deoni and Dangis breeds, facilities of pure breeding of that breed should be made available.
    - Exotic breeds other than those mentioned above, should be used only for experimental purposes and in restricted areas with the consent of Animal Husbandry Department.
    - Adequate numbers of bulls are to be made available by producing at the farms or even by purchasing the selected breeding bulls.

20. No.

21. No. Previously farmers were keeping buffaloes because the milk fetches more price for higher fat content. Now they have realised that cross-bred cows breed regularly and hence the farmers are more keen to keep cross-bred cows.

22. The major pure breeds of cattle in Maharashtra are Gaolao, Khillari, Deoni, Dangis and Red Kandhari.

23. Main Characteristics of Dangi cattle
    - These are medium-sized cattle which originate from Akola taluka of Ahmednagar District and Igatpuri Taluka of Nasik District.
    - These cattle are red and white or black and white in colour. They are hardy and can live in heavy rainfall tracts.
    - The bullocks are especially suited for working in rice fields but cows are poor milk producers.
    - Average lactation yield varies from 580 to 650 kg.
    - Chief physical characteristics are small head, with bulging forehead, long face, short horns, deep long body, with short, stout and powerful fore and hind quarters, small ears and oily skin.

    Red Kandhari
    - This breed is found mostly in Nanded District of Maharashtra.
    - This medium-sized breed has a strong, robust head, moderate horns, with long and drooping ears and short neck. Eyes are prominent with a shining black patch around the eyes. The tail is broad, tapering and the colour varies from red to brown.

24. Yes. The quinquennial census figures show the declining trend in their numbers. As yet, no breed has become extinct, but serious efforts should be made to preserve these pure breeds.

सत्यमेव जयते

(Note: The table provided by the State Government does not give the breed-wise figures of indigenous cattle. However, the census and other figures provided by the State Government indicates that the total population of cattle in the State has been increasing over the years).

25. Most of the breeds are draught breeds and are poor milk yielders. To preserve the germplasm of pure indigenous breeds, pure breed farms should be established in the State and also progeny-testing programmes should be taken up in the respective home tracts of these pure breeds.

26. Yes. The State is participating in the Project.

27. Yes.

28. Yes. In natural service, only one female can be served in one mating whereas in frozen semen technology more numbers of females can be served in perfect hygienic conditions (About 200 doses can be prepared from one donation of semen). The semen of best proven bulls can be preserved for 10 to 15 years.

29. Yes. It is necessary to conserve and protect indigenous breeds in their home tracts.

30. Yes. ILDPs generate employment and self-employment in rural areas to alleviate poverty to some extent.

13. Mizoram

19. At present, the State has got no notified Breeding Policy. However, there is a breeding programme.

20. No.

21. No. Not in Mizoram.

22. No descript indigenous breed of cattle are found in the State.

23. Not applicable

24. Does not arise.

25. Does not arise.

26. The State's sub-project envisages for the enhancement of its cattle breeding programmes.

27. Yes. SIA has not been set up as it is a young and small State.

28. Yes.

29. As far as milk is concerned, efforts should made to evolve an ideal variety.

30. Yes

14. Nagaland

19. The State does not have a breeding policy for cattle

20. Does not arise.

21. Not applicable.

22. None.

23. Not applicable.

24. Not applicable.

25. Not applicable.

26. The State is participating in the NPCBB. The target envisaged is to cover 13.45 lakh breedable female cattle in the five years of the project.

27. Yes. The project implementation envisaged will improve the delivery system for input services.

28. AI is more advantageous than natural services because:
- Selective breeding with high quality germplasm is possible with AI
- AI is more cost-effective
- AI is hygienic and healthy method. Natural service is liable to lead to the spread of sexually transmitted diseases.

29. Yes.

30. Yes. As poverty alleviation programmes, ILDPs are good. But eventually, it will depend on the stages of farmer's skill development, mixed crop farming which should be progressively replaced with specialised farming system to build up a competitive livestock industry in the changed economic scenario.

15. Orissa

19. The State has a breeding policy, whose salient features are as follows:

a) Cross-breeding with Holstein-Fresian semen is to be undertaken in specific pockets like urban areas and places having elite farmers, limiting the exotic inheritance to 50%.

b) Cross-breeding with Jersey is to be adopted throughout the State, limiting the exotic inheritance to 50%.

c) Interested and elite farmers be given scope to develop and maintain cross-breed animals upto a level of 62.5% of exotic inheritance.

d) Facilities for breeding with Hariana should be made available throughout the State throughout the State for which Hariana semen straws should be made available to all the Artificial Insemination Centres. If necessary, Hariana semen straws of potential bulls with good pedigree records may be purchased.

e) Use of pure Red Sindhi for breeding purpose should be gradually discontinued, but cross-bred bulls with 50% Red Sindhi and 50% Jersey blood shall be used for breeding of cross-breed cows with similar blood inheritance percentage.

20. There is no specific provision. The breeding policy of the State has been formulated basing on the farmers' preference.

21. Generally, in Orissa, there is preference for cows. Orissa has got its own indigenous breeds of buffaloe like Paralakahemundi and Sambalpuri. These breeds are eco-friendly. In these localities, farmers prefer Buffalo upgradation because of their high fat content of the milk and draught.

22. The major local indigenous breeds are the Binjhapuri, Ghumsari, Motu and Khariar, which fall in the category of non-recognised breeds. Their milk yield per day are 2 to 5 litres and male of the breed are famous for draught purposes.

23. Average milk yield of cross bred cows is reported to have increased from 3.892 kgs per day in 1997-98 to 4.803 kgs per day in 2000-01. As regards, non-descript animals, the average milk yield went up from 0.494 kgs per day in 1997-98 to 0.507 kgs per day in 2000-01.

24. The local breeds are declining due to non-preservation of germplasm and introduction of cross-breeding policy.

25. Action is being taken to preserve the germplasm for conservation of local breeds.

26. Yes. The Project Report for estimated expenditure of Rs. 48.49 crores over a five-year period is under active consideration of the Government of India / State Government. The major features are:

   a) Total breedable female bovine (cattle and buffalo) population is around 44.14 lakhs (2000-01 census), which is estimated to go up to 62.85 lakhs by 2006-07, which is the last year of the project

   b) Out of the total population, 60% will be covered under FSAI (Frozen Semen Artificial Insemination) and the remaining 40% by natural bull service.

   c) Natural services will be provided to remote areas and inaccessible areas will be replaced subsequently with FSAI in a phased manner.

   d) A State Implementing Agency viz. Orissa Livestock Resources Development Society (OLDRS) has been set up as required by the Project stipulations.

28. Yes. A.I. is the best way, over natural service, because of the following reasons.
   - Highly technical
   - Disease-free method
   - Cost-effective
   - Avoiding in-breeding
   - Introduction of high-yielding and disease-free progenies within a short period.

29. Yes.

30. Yes.

16. Punjab

19. The State Government proposes to use AI with Frozen Semen technology and promote cross-breeding programme with imported breed semen.

सत्यमेव जयते

20. No. Equal emphasis is being laid on both Cattle and Buffalo breeding programmes separately.

21. Yes. People of Punjab have special liking for buffaloe milk due to its higher fat content and taste. Also, buffaloes can be disposed off for slaughter and hides and skins.

22. The major indigenous breeds are Sahiwal, Haryana and Desi (local) breeds.

23. Milk yield of Sahiwal is 2500 litres per lactation, Haryana 1800 litres and Dessi 1200 litres per lactation.

24. There is decline in the number of Sahiwal breed.

25. Farmers' preference for cross-bred animals is a major reason for decline in the indigenous breeds. Pure breeding centres can be established to conserve and protect the indigenous breeds.

26. Yes. Punjab is participating in the NPCBB. Under the project, it is proposed to cover the whole breedable population of cross-bred cattle and 70% of the Dessi cattle.

27. Yes.

28. It is a well-established fact that Artificial Insemination is better than Natural Service.

29. Conservation of indigenous breeds is very much required for the purpose of back-crossing.

30. Yes.

सत्यमेव जयते

17. Rajasthan

19. The State has a Breeding policy for cattle, whose salient feature are:

- Main focus is on conserving and improving the indigenous breeds by selective breeding and upgradation.
- Cross-breeding will be provided selectively only on demand and desire of local farmers, with the permitted level of exotic blood up to 50%.
- Government Cattle Breeding Farms shall be utilised for rearing of calves as per a schedule drawn up in respect of specific indigenous breeds.
- A policy of crossing Hariana breed with Holstein was being followed since 1980 on economic considerations rather than on technical grounds. However, looking to the valuable bullock power, Hariana breed is to be preserved.
- Selective breeding of indigenous breeds such as Gir, Hariana, Malvi, Rathi, Kankrej, Nagori and Tharparkar will be carried out in areas where these animal are found in their true forms and in areas where the local breeders are willing and interested to preserve the local stock.

- Upgrading is to be adopted in areas where animals of the above breeds / strains are predominantly available with the breeders, who want to upgrade the breed and performance, particularly the bullock power and in areas where there is relatively less potential for fodder cultivation, such as Western Rajasthan and areas affected with recurrent famine and drought conditions.
- Cross-breeding is to be intensified in areas adjoining cities and towns where producers get remunerative price for pure milk, irrespective of fat percentage by selling directly to the consumers and also in areas where there are assured irrigation facilities available for fodder production.
- Three exotic breeds have been introduced viz. Holstein, Jersey and Red Dane. At national level, production of Red Dane semen has stopped and hence, breeding by this breed is not proposed.
- Selection and registration of bulls can be done by NGOs on the basis of milk recording so that NGOs as well as cattle breeders also play an important role in the execution of the programme and appreciate the importance of milk recording. However, final selection of bulls will be finalised as per Departmental norms.
- Free distribution of bulls is proposed to those cattle breeders who possess minimum 20 breedable cattle for next four - five years to provide better germplasm for upgradation.
- Till such time as frozen semen is produced in the State, it will procure and distribute frozen semen of proven bulls as per prescribed standards from Frozen Semen Stations at Bangalore, Pune, Karnal and Ahmedabad.
- Progeny testing and sire evaluation of newly-introduced bulls will be carried out as per scientific methods in collaboration with the University experts.

20. No. The breeding policy is not tilted in favour of increasing the number of buffaloes in relation to that of cattle.

21. Farmers prefer to keep buffaloes because of higher fat content of milk in comparison to cow's milk and also because buffaoes can be slaughtered for meat and hide.

22. The major indigenous breeds in the State are Rathi, Tharparkar, Kankrej, Malvi, Nagori, Gir and Haryana.

23. Rathi, Gir and Tharparkar are milch cattle, wheras Nagori and Malvi are basically draught cattle. Kankrej and Haryana are dual purpose breeds.

24. There has been a remarkable diminishing in the number of Nagori breed of cattle, mainly because of mechanisation.

25. Indigenous breed improve programme has to be given stress.

26. The State is participating in the National Project for Cattle and Buffalo Breeding and the target is to cover 50% of the breedable population of the State.

27. Yes

28. Looking to the limited number of proven or progeny-tested bull in the State, Artificial Insemination is the proper method to use. Simultaneously, natural service facility can be provided in AI non-reachable areas.

29. Yes.

30. Yes.

18. Tamil Nadu

19. The policy followed for breeding of cattle is as follows:

- Upgrading the progeny of the local non-descript breedable female cattle by using the semen of dairy breeds like Jersey and HF.
- Breeding cross-bred cows with cross-bred bull semen.
- Selective breeding of native pure breeds of cattle such as, Kangeyam and Umblachery in their respective breeding tracts.

20. Yes. The breeding policy is for increasing both cattle and buffalo population.

21. Yes. The farmers find it more profitable to keep buffaloes because of higher fat content of buffalo milk.

22. Kangeyam and Umblachery are the major indigenous breeds of the State.

23. Both breeds are used for dual purpose, as productive animals as well as for draught animal power.

24. Yes, there has been a declining trend.

सत्यमेव जयते

25. Farmers prefer tractor ploughing over cattle-ploughing because of maintenance of cattle being costlier than tractor. In Government livestock farms these breeds are maintained and conserved.

26. The State is participating in the NPCBB Project. At present, the breeding activities cover only 32% of the population. During the project, 7% of the population of cattle will be further covered every year.

27. The project will fulfill its objectives.

28. Yes. Semen can be preserved for more number of years, even after the death of the bull and more number of progenies can be obtained from one bull in AI technique than in natural service.

29. India should conserve its indigenous breeds, which have high disease resistance and heat tolerance traits.

30. Yes.

19. Uttaranchal

19. Breeding policy of undivided UP, framed for hill districts is being followed for Uttaranchal. Modifications will be made as per need. The salient features are:

    - All cattle, except recognised breeds like Sahiwal and Hariana, shall be crossed with exotic breeds, mainly HF and to a limited extent, in limited areas, with Jersey. In Bundelkhand and hill areas, where the size of animals are small, cross-breeding is to be done by Jersey in the first instance.

    - The FI crosses shall be further crossed with high-yielding HF cross-bred bulls. Bulls of high production potential shall be used for AI. The level of exotic inheritance is to be maintained at around 50% to 62.5%. Crossing the local cattle with an exotic breed bull and the subsequent crossing of the resulting progeny with a cross-bred HF bull having 50% exotic inheritance will bring this about.

20. No comments.

21. Yes. Buffalo milk contains higher fat content. Buffaloes are also used for hide and meat purposes.

22. The State has got only non-descript local cattle.

23. The local cattle is small in size, disease resistant, white and white-red-black in colour. Milk yield is 150 to 200 litres per lactation. Bullocks from these indigenous cows are small, sturdy and capable for agricultural purposes, keeping in view the hilly terrain.

24. Yes. There has been a decline in the cattle population of the State. However, no indigenous breed is reported to have become extinct.

25. The decline in the numbers of indigenous breeds are partially due to the scarcity of fodder and increasing trend for cross-breds and buffaloes.

26. Yes. The project has been approved. The Uttaranchal Livestock Board is the State Implementing Agency.

27. Yes.

28. Yes. AI is the best way. Uttaranchal has few indigenous Sindhi breed and more non-descript cattle. Out of 13 districts, 10 districts are hilly in which only local non-descript cattle are available. In these remote areas, AI facilities are not available and cattle are covered by natural services. Efforts are being made to improve these services and the genetic classification of hill cattle has been proposed with the help of various institutes and Government of India and as per requirement, changes in the breeding policy will be made.

29. Yes

30. Yes

20. Uttar Pradesh

19. The main objectives of the Breeding Policy of the State are:

- To increase milk production
- To ensure availability of good quality animals for draught purposes
- To conserve indigenous breeds

The main considerations are:

- Cross breeding with exotic breeds is recognised as a major strategy to increase milk production in cattle
- Artificial insemination using deep frozen semen is the tool to accelerate the genetic make-up of cattle population
- Active intervention to improve the stock of draught animals are combined with efforts to conserve and develop indigenous breeds
- Cross-breeding and upgrading may not be possible in every prevailing livestock production system of the State. Regional and location-specific features such as climatic conditions, feed and fodder availabilty, livestock management practices and market potential / facilities for livestock produce have to be taken in to account while proposing breeding interventions.
- Despite all efforts to propagate AI, more than half of the bovine population continues to be bred through natural service. Making available good quality breeding bulls for the natural service is a means to improve the bovine population in non-AI areas.
- Breed conservation, though formulated as an aim as its own, is to be seen in the context of the prevailing farming system and the competitiveness of the indigenous breed. Keeping a particular livestock breed must be feasible and particularly viable for the farmer.

20. No.

21. Farmers do prefer to keep buffaloes because they are manageable and adaptable to local geo-climatic conditions and they fetch more economic returns as their milk contains a higher fat percentage; both facts are true.

22. The major indigenous cattle breeds are Sahiwal, Hariana, Gangatiri, Tharparkar, Red Sindhi, Kherigarh, Panwar, Kanketha and Kosi.

23. The major features of the indigenous breeds are:

Kherigarh: The home tract of this breed is Lakhimpur Kheri. The characteristics are bright eyes, small ears, short neck, well-developed hump, dewlap thin and pendulous and long tail.
Kanketha: The body is short, short head, broad forehead, medium-sized tail and strong horns, pointed outwards.
Gangatiri: Medium-size, straight broad head, white to light gray in colour, short horns, strong limbs, long tail, prominent milk vein. The milk yield capacity is between 1400 and 1600 kg per annum.

24. There is a significant decline in the number of breeds. The breeds likely to become extinct are Gangatiri, Kherigarh, Panwar, Kanketha and Kosi. The exact number of breeds nearing extinction is not clearly known.

25. The main reasons for decline in cattle numbers of these breeds are less utility of bullocks in mechanised agriculture, less competitive to buffaloes in milk price, and to cross-bred cows in milk production, hesitation of farmers to adopt them on economic considerations, prevalence of illegal trespass of cows and its progeny, particular through border areas and their illegal slaughter; ill-maintenance of Gosadans and Goshalas to keep them. To conserve these breeds of cattle, a methodical approach is required on their protection, adequate selective breeding through farmers' participation; extending support through incentives and groups (breeders' associations), proper utilisation of cow dung, urine, milk and draught power and strengthening of Goshalas and Gosadans.

26. Yes. The State has submitted a detailed project to Government of India.

27. Yes. The needful activities will be undertaken on timely assistance from GOI.

28. Artificial insemination is the best way for conserving and propagating indigenous breeds, and the tool is advocated in the State Breeding Policy. The comparative advantages of AI over Natural Services are:

- It is the safest way of covering females
- It is easy and cheaper to use
- It is the technique of choice to bring in better genetic potentials
- It prevents spread of infectious reproductive diseases
- It maintains reproductive health, herd management for better productivity of livestock and milk
- It requires lesser number of bulls, having more genetic superiority
- Use of frozen semen in this technique facilitates its use in distant areas even beyond geographical boundaries and / or the death of an excellent bull.

Despite these advantages of AI, natural breeding by quality bulls in controlled conditions is also a very good option.

29. Yes. It should be done to restore the nature's heritage for our future breeding goals. The cross-breeding will continue with the objective of enhancement of milk production, and promoted among resource-rich farmers, who can maintain them. But the indigenous breeds should be developed with competitiveness, so that the Below Poverty Line groups or Farmers Interest Groups would also be benefited.

30. Yes. Animal Husbandry is the only complement to the farmers, which can provide a way of earning additional income.

21. West Bengal

19. On review of the results of the breeding policies and practices being followed over a period of time, it was found by the authorities that a high concentration of exotic inheritance had come into existence in some particular pockets, which brought many problems, such as lowered milk production and sterility etc. The West Bengal Government has issued a notification dated 13.6.2002, laying down an Interim Breeding Policy, which is to be followed till such time as the final Policy is formulated by a Group of Experts to be set up by the Government. The interim breeding policy lays down different breeding strategies to be followed in the various geographical regions, as follows:

Hilly Regions (where unconventional fodders grown in forest areas have fairly good nutritive value)

- The general policy should be cross-breeding.
- The choice of the exotic breed would be Holstein Freisan, although the farmer's choice for Jersey will also be permitted.
- The level of exotic inheritance may go up to 75%.
- Mating among the cross-bred population should be inter se mating.

Terai Zone (where, in addition to conventional fodders grown by farmers, there are some unconventional fodders available in forest areas and tea gardens).

- In the Terai Zone indigenous cows will be mated with exotic bulls of Jersey and HF.
- The level of exotic inheritance should be either 50% or 75%.
- Inter se mating among the cross-bred population is to be followed to maintain the exotic inheritance at those levels.

Coastal Zone (where salinity of in soil is high and scope for traditional fodder production is limited, apart from saline-resistant varieties).

- Cross-breeding with Jersey will be tried, keeping the exotic inheritance at 50% level.
- Upgrading with Sahiwal and Gir will be tried at certain locations.

New and Old Alluvial Zones (where soil is very fertile and farmers grow seasonal as well as perennial fodders on small scale and cattle are mostly fed on agricultural by-products)

- Cross-breeding with either Jersey for non-descript cows and up-grading with Sahiwal, Red Sindhi and Gir for recognised breeds of Indian cattle.

- Exotic inheritance will be restricted to 50% and inter se mating will be followed for cross-bred cattle.

Laterite Zone (which is a dry region, where the soil is not fertile)

- Either up-grading of indigenous breeds with Tharparkar, Gir and Red Sindhi or cross-breeding with Jersey.

- Exotic inheritance should not exceed 50%

20. The State has a buffalo population of about 10 lakhs against a cattle population of around 183 lakhs. Hence the breeding policy is tilted in favour of increasing the number of buffaloes.

21. Yes. Buffalo milk has a higher fat content. Generally breeding and management of buffalo is comparatively difficult, hence farmers in the rural areas of the State generally prefer cattle to buffalo, but buffalo keeping has become a common practice in and around urban and semi-urban areas. In rural areas of some districts, male buffaloes are used for ploughing in sporadic form.

22. The State has no recognised breed of indigenous cattle.

23. Does not arise. But average estimated milk yield of non-descript cattle is 400 kgs per lactation.

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24. The number of non-descript cattle was around 173 lakhs in 2000-01, which was around 169 lakhs in 1978.

25. Does not arise. The non-descript breed of cattle in the State has a positive growth rate.

26. Yes. West Bengal is participating in the recently launched NPCBB. The Paschim Banga Go-sampad Vikas Sanstha is the State Implementing Agency for the project.

27. Suggestions will be given once the project is implemented.

28. We strongly feel that AI is the best way. The comparative advantage of AI over NS is as follows:

    - Through AI we can provide selective superior genetic germplasm through Frozen semen straws in an organised way and make the facility available at the farmers' doorstep.

- This also ensures control of spread of genetic diseases to a great extent.
- AI technology also prevents loss of germplasm and it is cost-effective.

29. The ideal is a mixture of both ventures (i.e. conservation of indigenous breeds and cross-breeding) in a judicious way. Maintenance of 50% exotic inheritance will ensure achievement of both the goals viz. increasing milk yield and making our cattle disease-resistance. At the same time, non-descript cattle of the State is to be preserved.

30. Yes. Maintenance of different species of animals such as cattle, goat, sheep and poultry is a very good endeavour for income generation and poverty alleviation in rural areas.

22. U.T. of Chandigarh

19. The UT has only 7254 cattle population and follows the breeding policies of Punjab.

20. No.

21. Yes. Farmers prefer to keep buffaloes both for higher fat content of milk and because buffaloes can be slaughtered for meat and hide.

22. There are only non-descript breeds.

23. The breeds are dual purpose. The average milk yield is 3.5 kg per day.

24. The Sahiwal breed has become extinct in Chandigarh.

25. Since no pure indigenous breed is available in the UT no action can be proposed to be taken to conserve and protect the breeds.

26. UT of Chandigarh is not participating in the NPCBB.

27. Not applicable.

28. Yes. AI is preferred because:

- Wide coverage can be provided through AI
- Handicapped animals can also be inseminated through this provision
- It is much cheaper as compared to natural service
- Genital diseases can be avoided through AI but conception rates through AI is less as compared to natural service.

29. India should conserve selected indigenous breed like Sahiwal and Hariana

30. No.

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